THE ECONOMIC JOURNAL

THE JOURNAL OF THE ROYAL ECONOMIC SOCIETY

Edited by
R. F. HARROD and E. A. G. ROBINSON
assisted by
R. C. O. MATTHEWS

VOLUME LXV

LONDON: MACMILLAN AND CO LIMITED
NEW YORK: THE ST MARTIN'S PRESS
1955

Printed in Great Britain by
Richard Clay and Company Ltd.,
Bungay, Suffolk

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THE ECONOMIC JOURNAL

THE QUARTERLY JOURNAL OF THE ROYAL ECONOMIC SOCIETY

EDITED BY R. F. HARROD & E. A. G. ROBINSON

ASSISTED BY R. C. O. MATTHEWS

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THE ECONOMIC JOURNAL

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ECONOMIC GROWTH AND THE PRICE LEVEL

1.0. THE object of this paper is to account for the alternating phases, of twenty to thirty years in length, apparent in the course of economic growth, and particularly to offer an explanation of the associated movements of prices, as these things have presented themselves in the United Kingdom. In 1930 Kuznets [1] named them "secondary secular movements," and summarised earlier discussion. Since then, they have been further studied by Arthur Burns,[2] Kuznets himself,[3] Rostow [4] and Brinley Thomas.[5] In the United Kingdom they present the following pattern.

1.1. Their best-known manifestation is the rise and fall of *the wholesale price level* (Fig. 1(*a*)) by whose turning-points, indeed, the successive phases are usually marked off.[6]

1.2. *The long-term rate of interest*, as shown by the yield of Consols (Fig. 1(*a*)), has moved in strikingly close sympathy with the wholesale price level. This has become known as the Gibson paradox.[7]

1.3. The movements of *the terms of trade* (Fig. 1(*b*)) suggest that the rise and fall of wholesale prices were not simply part of a general movement of all prices, but were connected with shifts in the barter rates of exchange at which primary products were available. In one sense, such rates are displayed by the net barter terms of trade.[8] But since these were so

[1] S. S. Kuznets, *Secular Movements in Production and Prices.*

[2] A. F. Burns, *Production Trends in the U.S. since 1870*, Ch. V.

[3] S. S. Kuznets, *National Income, a Summary of Findings*, II, 5.

[4] W. W. Rostow, *British Economy of the Nineteenth Century*, I, 1; *The Process of Economic Growth*, I, 6. Gayer, Rostow and Schwartz: *The Growth and Fluctuation of the British Economy*, Vol. II, Pt. I, Chs. IV, V.

[5] Brinley Thomas, "Migration and the Rhythm of Economic Growth, 1830–1913," *The Manchester School*, September 1951; *Migration and Economic Growth* (National Institute of Economic and Social Research, 1954).

[6] Rostow (*The Process of Economic Growth*, I, 6), gives the phases of the price level as 1793–1815, rising; 1815–48, falling; 1848–73, rising; 1873–96, falling; 1896–1920, rising; 1920–35, falling; 1935 to the present, rising. But all four series in our present Fig. 1 give reason to believe that the downward trend of 1873–96 actually set in from the end of the American Civil War, the boom following the war of 1870 being only an interruption of a process already well under way; cf. Pedersen and Petersen, *An Analysis of Price Behaviour during the period 1855–1913*, p. 136.

[7] *The Banker's Magazine*, A. H. Gibson, January 1923; E. G. Peake, May 1928. Appendices to the *Report of the Committee on National Debt and Taxation*, 1927: W. H. Coates, Appendix XI, paras. 55, 56. J. M. Keynes, *A Treatise on Money*, Vol. II, Ch. 30 (viii).

[8] W. Schlote, *British Overseas Trade from 1700 to the 1930's*, Table 26; A. H. Imlah, *Journal of Economic History*, X, 2, November 1950; Debenham's estimates, corrected for import contents of exports, at Table 44 of A. K. Cairncross, *Home and Foreign Investment, 1870–1913.*

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Fig 1ª Secondary Secular Fluctuations
G.B. 1790 - 1952
A Wholesale Price Index
B Yield of Consols

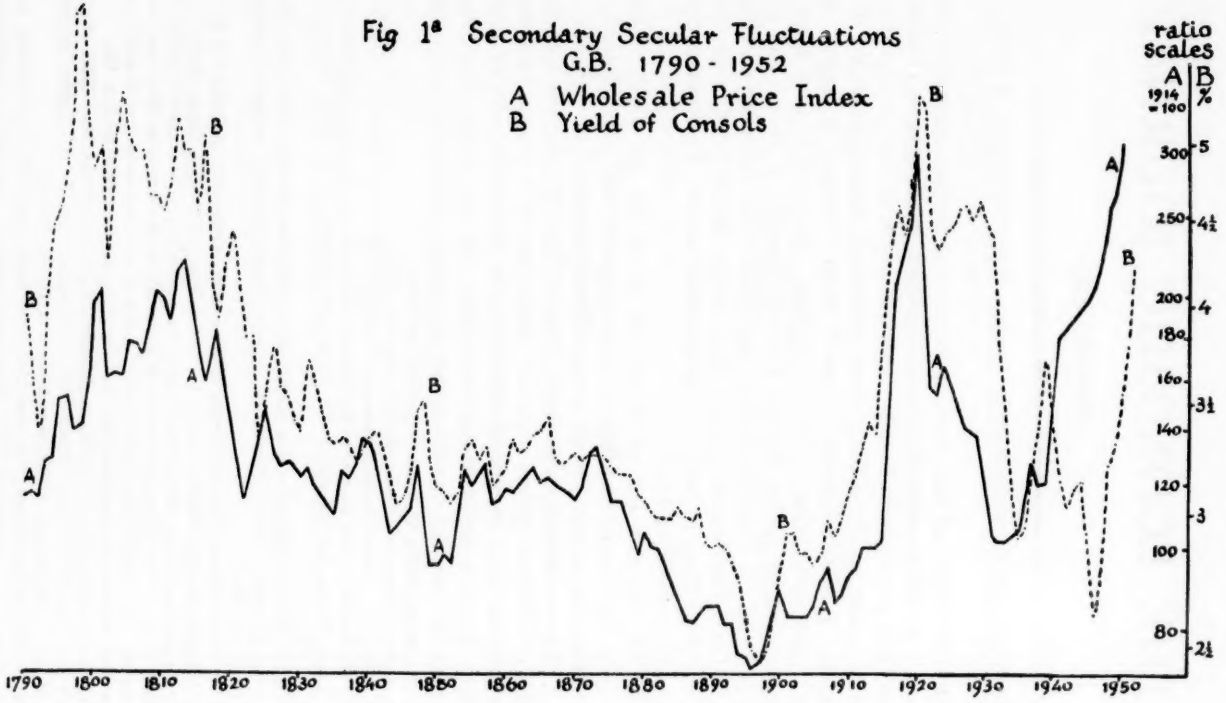


Fig. 1[B]: Secondary Secular Fluctuations
G.B 1790-1952
C. Terms of trade expressed as volume of imports per unit British labour
D. Real wages

much affected by the industrial improvements which raised the amount of manufactures which could be given for the unit of primary products, even at times when this unit could be obtained in exchange for less industrial effort, they do not directly display the terms on which primary products were available to the industrial population. We have therefore taken as our measure of the terms of trade here the rate of exchange between British wage-earners' labour and British imports. Fig. 1(*b*) shows that the quantity of imports obtainable in exchange for a unit of British labour usually rose when wholesale prices were falling, and fell when they were rising, throughout our 150 years.

1.4. The movements of British *real wages* (Fig. 1(*b*)) resemble those of the last series, in that they are generally in phase with those of wholesale prices, usually rising faster when prices were falling, and conversely.[1] The closeness of agreement between our terms of trade and real wages is in one sense only to be expected, in that both are derived from the index of money wage-rates, and the index of import prices which we use to get our terms of trade is highly correlated with the index of the cost of living which we use to get real wages. But in another sense the facts that the cost of living depended so much on the cost of imports, and that money wages did not move so as to offset the drifts of change in those costs, are findings about the actual behaviour of the economy.

1.5. The active British foreign investment of 1878–90 came in a time of markedly falling wholesale prices, and in general the movements of foreign investment were more intermittent than those of prices, and their turning-points did not coincide with those of the price level. None the less, it is significant that British foreign investment [2] was generally highest at times when the trend of wholesale prices was upwards.

1.6. The secondary secular movements are long enough to cover two, three or four trade cycles; but no systematic difference has been found between the cycles that fell within the different movements. In particular, it was not the case that the upward phase of the cycle was stronger, or investment more vigorous, when the secular movement of prices was upward; nor that expansion was cut off by any shortage of money when that movement was downward.[3]

1.7. Thus, in sum, we recognise the existence of secondary secular move-

[1] See also A. H. Hansen, "Factors Affecting the Trend of Real Wages," *A.E.R.*, March 1925, with note at p. 294, June 1925.

[2] Rostow, first and third works cited under para. (1.0) above; A. K. Cairncross, *Home and Foreign Investment, 1870–1913*, Table 40, p. 180.

[3] Gayer, Rostow and Schwartz, *The Growth and Fluctuation of the British Economy 1790–1850*, Vol. II, Part I, Ch. II, para. 9, and Ch. IV, para. 5. Between 1850 and 1914, both the trade-union unemployment rate and Beveridge's index of construction and instruments (Beveridge, *Full Employment in a Free Society*, Appendix A) suggest a rather higher level of activity in the phase of rising prices down to 1873 than in the twenty years of generally falling prices which followed, but reveal practically no difference between these twenty years and the next phase of rising prices, here taken as running from 1894 to 1914. Burns and Mitchell, in *Measuring Business Cycles*, Ch. 11, look for differences between American business cycles according to their positions within the long waves of activity, as these have been variously defined, and find hardly any.

ments mainly because four important variables show alternating periods of change lasting twenty to thirty years, and these periods are roughly in phase in all four series. They are the wholesale price level, the long-term rate of interest, the terms of trade and real wages. In one phase wholesale prices will be rising, the long-term rate of interest rising, the terms of trade moving less favourably to the British worker, and real wages improving less rapidly; in the next phase the reverse, in all four respects. We noticed also that though British foreign investment was not regularly aligned with price changes, most of its more active years fell within periods of rising prices.

How can we account for these associated movements?

2.0. The traditional explanation of the movements of the price level was expressed by Marshall when he wrote, in his "Remedies for Fluctuations of General Prices," [1] that "long-period fluctuations . . . are chiefly caused by changes in the amounts of the precious metals relatively to the business which has to be transacted by them, allowance being of course made for changes in the extent to which the precious metals are able at any time to delegate their functions to bank-notes, cheques, bills of exchange, and other substitutes." The movement of the price level, that is to say, depends on the rates of growth not only of (*a*) the quantity of specie, but also of (*b*) the business to be transacted, as measured by the flow of payments reckoned at constant prices, and (*c*) the specie-economising practices. Cassel and Kitchen [2] set out a striking simplification of this explanation. They calculated the constant rate of growth which would have produced the end-to-end change actually recorded in (*a*) over a span of years. They then showed a high correlation between the divergences of the actual growth of (*a*) from this constant rate, and the contemporary movements of the price level, which they treated as uniquely dependent on those divergences; though this could be so only on the implicit assumption that meanwhile all divergences of (*b*) from the same constant rate of growth were exactly offset by changes in (*c*). This procedure has been dealt with thoroughly by Phinney,[3] and can now be regarded only as a statistical curiosity. But the more complex Marshallian formulation holds the field. For our present purpose its essential assumption is that the stock of gold acts on the price level but is not adjustable to it: hence Marshall's inference, in the paper just quoted, that long-period fluctuations in prices "would certainly be much mitigated if each decade's supply of the metallic basis of our currency could be made uniform —*i.e.*, to grow proportionately to our commercial wants." We believe that this view is mistaken. We do not, of course, deny that a change in the metallic basis or in any other form of the medium of exchange could, and sometimes in the short run did, cause a movement of prices in the same direction; but the evidence obliges us to conclude that in the secondary secular movements of prices the quantity of money played a passive part,

[1] Reprinted in A. C. Pigou, *Memorials of Alfred Marshall.*

[2] Interim Report of the Gold Delegation of the Financial Committee, Annexes X and XI (*League of Nations, II Economic and Financial*, 1930, II, 26).

[3] J. T. Phinney, "Gold Production and the Price Level," *Q.J.E.*, XLVII, 4, August 1933.

adapting itself to the requirements of changes in turnover which were independently initiated. The influence of the quantity of money on the price level, on this view, has for the most part been only secondary, and has been exerted only through the readiness or reluctance with which that quantity adapts itself to changes in turnover; and even here the evidence suggests that its effect was in fact small, that a greater stock of gold would have done little to check a secular fall in the price level, or a smaller to check a rise. The evidence is as follows.

2.1. The world's monetary stock of gold was only a part of the whole stock; in the first half of the nineteenth century it seems to have been about a third, by 1909 it had become a half.[1] Much of the non-monetary stock could have been buried deep, while leaving a substantial amount which could be induced to move from one use to the other; and the new output of each year could be and was divided between the two uses in proportions which varied from time to time.

2.2. The connection between the monetary stock of gold and the quantity of means of exchange in actual use was both indirect and flexible: it was liable to change, and was in fact changed, at many points within the inverted pyramid of the banking system. "Such data as are available show that little or no relation existed between the rate of growth of the gold supply and the rate of growth of either bank reserves or bank notes and deposits. . . . This absence of correlation is especially striking in the period from about 1875 to 1913, when so many of the statistics examined show a relatively constant rate of growth of bank reserves and of bank currency, quite unaffected by variations in gold production or by trends in prices."[2] Even, moreover, when we reach the quantity of the actual means of exchange, we find that only some of them were at any time held under the transactions motive; the rest, which were probably the greater part,[3] were held under the precautionary and speculative motives, and were available to reinforce the circulating balances. It is, to say the least, very hard to believe that in these circumstances a change in the monetary stock of gold would have enforced a change in the flow of spending which would not have come about otherwise.

2.3. The belief that changes in the supply of gold took effect on the movements of the price level can appeal to the coincidence between each of the two big rises in gold output and a turning point in the trend of prices: the first coinciding with the end, about 1848, of the thirty years' fall in prices since Waterloo, and the second with the upturn of prices in the mid-1890s. There is no doubt that these spurts of gold output seemed very important to contemporaries, and that they made an immediate difference to the monetary ease of the City of London. But it is not clear that, even in

[1] Table A of Annex X, *League of Nations, II Economic and Financial*, 1930, II, 26.

[2] J. T. Phinney, "Gold Production and the Price Level," *Q.J.E.*, XLVII, 4, August 1933.

[3] "In practice they (idle balances) are probably many times larger than those being used in income transactions." F. W. Paish, "Open and Repressed Inflation," ECONOMIC JOURNAL, September 1953, p. 536.

the short run, it was the change in the monetary stock of gold which caused the upturn of prices, rather than the increase in the demand for British exports: it was on this last that Newmarch [1] laid emphasis in 1857, in his Keynesian analysis of the expansion of " effective demand " (his own term) for the products of the whole world, which spread out from gold-digging as a form of investment.

Yet after the initial outburst of investment in the gold-fields had ended, the effect on prices persisted: uncertainly in the 1850s and 1860s, when we do not know how far some underlying tendency of wholesale prices to fall back was overpowered by the many wars, but clearly in the fifteen or twenty years down to 1914; and it is natural to ask whether this was not caused by the rise at these times in the world's monetary stock of gold, which doubled in the ten years after 1848, and again in the twenty years after 1890. But if it was these accumulating reserves that raised prices by way of easy money, why in each of these periods did the rate of interest rise? This is a vital point, to which we recur below. Nor is it necessary to suppose that the gold was brought to passive bankers, whose reaction to it was mechanical and according to fixed reserve ratios. We have noticed already the lack of a regular relation between the growth of gold reserves and of money held by the public; and we have Keynes's observation [2] that Central Banks " are all natural gold-hoarders, and are always keen to increase their stocks of it whenever they find themselves in a position to do so without inconveniencing the business world."

2.4. A change in prices brought about from the side of money must be expected to raise most product and factor prices, at any rate those which can be re-negotiated, in much the same degree, save only for such shifts in relative values as are always going on; but in fact the British terms of trade (para. (1.3) above) suggest strongly that the movements of wholesale prices were systematically connected with changes in the terms on which primary products were available to the industrial worker.

2.5. The secondary secular movements of wholesale prices persisted through two, three or four trade cycles, so that cyclical phases of tight money and falling prices occur in periods of rising price trends, and conversely. If in fact these price trends were themselves also due to changes in the supply of money, it is hard to see how they could exert themselves except, so to speak, by tilting the trade cycle, by making the phases of monetary ease and expansion rather longer or further-reaching when the price trend was rising than when it was falling, and correspondingly adjusting the phases of recession. But the evidence summarised in (1.6) above shows that there was no such systematic difference in the British trade cycles of 1790–1914.

2.6. If the price trends were caused by changes in the supply of money, we should expect rising prices to go with easy money and low interest rates, and falling prices with the contrary. In fact, the record shows it was the

[1] Tooke and Newmarch, *A History of Prices*, Vol. VI, Part VII, Sec. 11, p. 212, and Sec. 14, p. 226.

[2] *Treatise on Money*, Bk. VI, Ch. 30, p. 205.

exact opposite that happened: the rate of interest rose and fell with wholesale prices, not against them. This is " the Gibson paradox," but it is no paradox if we give up the assumption that the supply of money was exerting pressure on the flow of payments, and suppose it was the other way round.[1] When the movements of wholesale prices and the long-term rate of interest are compared in Fig. 1(*a*), the two post-war phases which we may call the Cunliffe and Dalton phases stand out as exceptional: in both (though in opposite directions) the initiative came from the supply of money, in both the price level and the rate of interest moved in contrary senses. This strengthens the inference that when they moved in the same sense, as they generally did elsewhere, the initiative came not from the supply of money but from the demand for it.

2.7. Thus there are three reasons which permit us, and three which induce us, to believe that the secular movements of prices were not due to changes in the supply of gold. The monetary stock of gold was not physically limited but was never more than half the whole stock; there seems to have been no systematic connection between changes in monetary stocks of gold and in the quantity of money in the hands of the public; an alternative explanation can be given of the coincidence between the two spurts of gold output and the changed direction of price movements. More than this, the price movements were not those of a *numéraire* but were regularly bound up with movements of the terms of trade; there was no systematic difference between the trade cycles in the different phases of price movement; and the long-term rate of interest moved not in the contrary direction to the price level but in the same.

If, then, the origin of the secular movements of prices does not lie in gold, where does it lie?

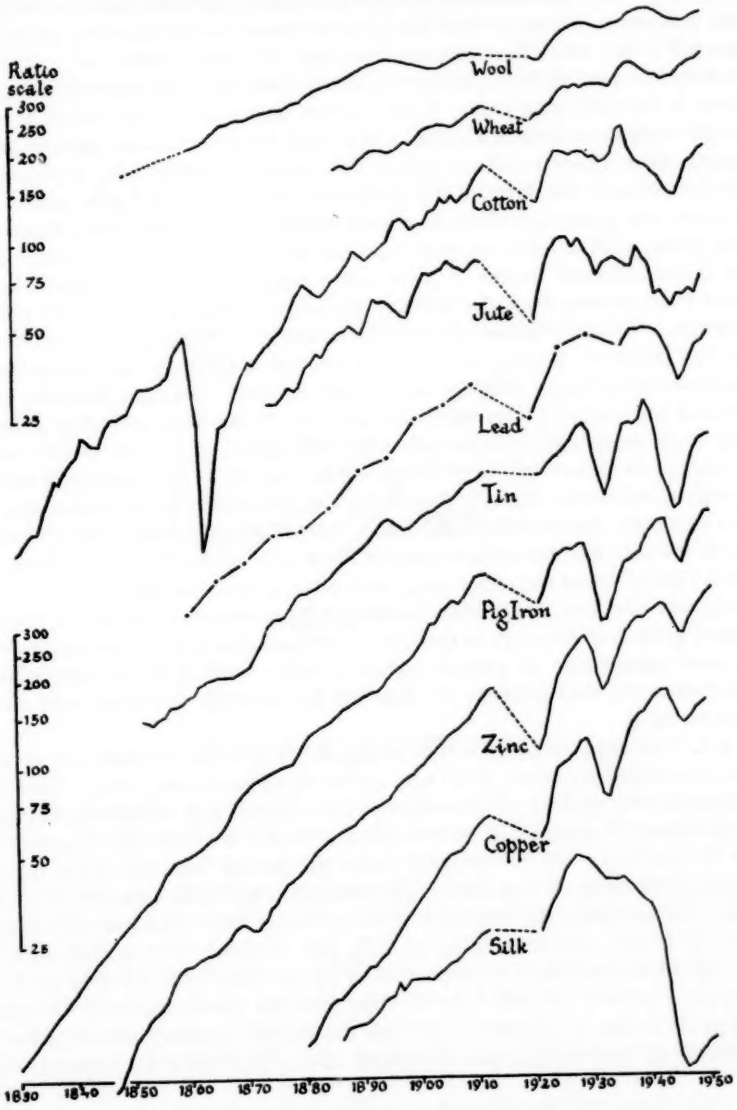
3.0. From his study of the annals of the British economy since 1790, Rostow has developed an explanation built on changes in the rate of growth of the output of final products,[2] or, latterly, of primary products,[3] relatively to that of effective demand, the periods of rising prices being broadly those of a reduced rate of growth in the flow of products into the market, and conversely. Any explanation of this kind is exposed to the objection that what records we have of the growth of the outputs of primary products do not show the changes it supposes. These records, whose sources are described in the Appendix to this article, are illustrated in Fig. 2. What is required is a general check to rates of growth at the time of the great upturn of wholesale prices in the mid-nineties, and a generally higher rate of growth to accompany the weakness and decline of those prices in the inter-war years. But we do not find such changes. Of the ten products in Fig. 2,

[1] Cf. para. 9 of Phelps Brown and Weber, " Accumulation, Productivity and Distribution in the British Economy, 1870–1938," ECONOMIC JOURNAL, June 1953, with the acknowledgment there to Dr. A. W. H. Phillips.

[2] W. W. Rostow, *British Economy of the Nineteenth Century*, Chs. I, III, IV, VII. A. D. Gayer, W. W. Rostow and A. J. Schwartz, *The Growth and Fluctuation of the British Economy, 1790–1850*, Vol. II, Part I, Chs. IV, V.

[3] W. W. Rostow, *The Process of Economic Growth*, Ch. 6.

Fig 2: Total Output of some Primary Products.
[3-yr. av of cyclically-cleared series]



only wool, and to a less extent jute, move conformably. The others are remarkably alike in showing no check to the rate of growth through the nineties and on to 1914; and, save for silk, their outputs in 1930 were all lower than they would have been if the pre-war rate of growth had been kept up. The inference is strong that the general movements of prices arose from changes in the rate of growth not of supply but of demand.

4.0. We can picture changes in the growth of real demand as coming about in the following way. With a given barter rate of exchange at which primary products are available, there will be at any one time a certain volume of primary products which the industrial world will demand, and another which the rest of the world will supply. As time passes both volumes are growing. If at our starting point they are about equal, and they grow at much the same pace, then the barter rate will change little; but if the demand begins to grow more rapidly while the supply rises no faster than before, then the barter rate will move in favour of the primary producer. What governs the rate of increase of the demand, and can we see, for instance, why it should have caused a spurt in the mid-nineties? The governing factor must be industrial capacity: in part directly, as the demand for leather grows with the capacity of the boot-and-shoe industry; and, more generally, because what the industrial world has to buy with is ultimately its own power to produce. But it is not at first apparent why the growth of industrial capacity should have quickened in the mid-nineties. On the contrary: the records of industrial output usually show a fairly constant rate of growth, and for some countries there is evidence that " the climacteric of the 1890s " went the other way, that the growth of output, if not of equipment, was checked about this time.[1] It is, however, possible for constant rates of growth of capacity in the separate economies to compose an aggregate demand whose rate of growth varies greatly; and it is this aggregate or world demand that governs the markets for primary products, and so concerns us here.

4.1. The explanation [2] is that if two series growing at different constant rates are added together, their sum grows at an increasing rate. This holds without regard to their relative sizes at the outset. Let us take the capacities of the cotton industries of two countries, which we will call America (A), and Britain (B). At our starting point the British industry has a capacity requiring 10 units of raw cotton (C) annually, and this capacity is growing at 2% per annum; the capacity of the younger American industry is as yet only for 1 unit, but is growing at 10% per annum. The capacities of the two industries will then be represented by the lines AA, BB in Fig. 3, and their sum (which we will take to represent the world demand for cotton) will grow as shown by WW. At first the British industry accounts for ten-elevenths of the world capacity, whose rate of growth is consequently close

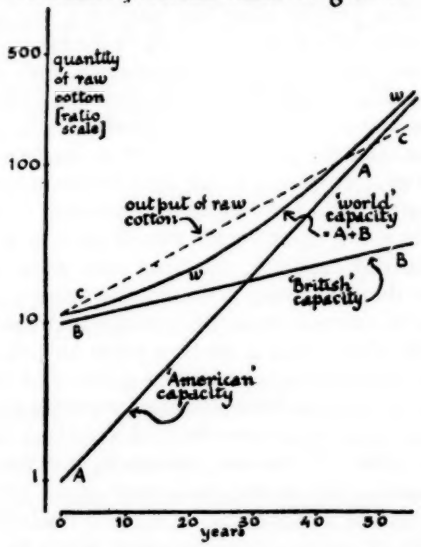
[1] Phelps Brown and Handfield-Jones, " The Climacteric of the 1890s," *Oxford Economic Papers*, October 1952.

[2] I claim the privilege of a senior partner to state that the argument of this paragraph is due wholly to S. A. Ozga. E.H.P.B.

to the British 2%; but as time passes the American industry forms an ever-greater part of the whole, whose rate of growth therefore comes nearer to the American 10%. Suppose that the supply of raw cotton was at the outset just the 11 units which the world industry required, and that this supply rose at 5% per annum: its movements are shown by *CC*. At first the supply rises faster than capacity, but after about twenty-five years the two rates are the same, and thereafter world capacity is overtaking the growth of supply.

But clearly the actual course of events could never be such as Fig. 3

Fig 3: Illustration of changing effect on price of constant potential rates of growth



shows: the disparity of demand and supply would soon set up too much pressure. The rates of growth which the lines *AA*, *BB*, *CC* show are those potential rates which may be expected as part of the organic growth of the whole economy in population, capital and technique, but the actual growth can be speeded up or slowed down by changes in the rate of return to the particular activities concerned, and in this way potentially disparate rates of growth can be adjusted to one another. Suppose first, always for the sake of exposition, that the task of adjustment is borne wholly by supply. Then the output of raw cotton will have to follow not *CC* but *WW*. The tendency to grow along *CC* will have to be held back for some time by prices which must become successively lower as the extent of the divergence to be enforced increases. But then we reach a stage in which the slope of *WW* is as great as that of *CC*, the world capacity is rising as fast as the potential rate of growth of supply, and the price of raw cotton need no longer fall;

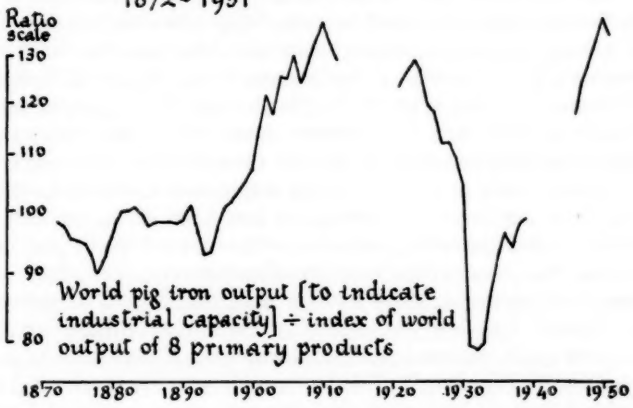
and after that capacity begins to grow faster than supply, and the price of raw cotton must rise progressively. So after a period of pressure to slow down the growth of the output of raw material, by falling prices, we have one of pressure to speed it up, by rising prices; and this without any increase in the potential rates of growth of industrial capacity, or check to that of raw material output. The same effect appears if, alternatively, we suppose that the task of adjustment is borne wholly by industrial capacity. The actual output of raw cotton now follows *CC*, and the two industrial capacities must follow curves which rise more steeply than *AA* and *BB* at first, but are concave downwards, and after a time turn back to *AA* and *BB*: for such are the curves which (if the adjustment is divided between the two industries proportionally to their sizes) will sum to the line *CC*. To stimulate a rate of industrial expansion greater than the potential, the price of the raw material must fall, and continue to fall so long as the extent of the divergence must widen; but then the need for stimulus ends, and the potential rate of growth of the industries is sufficient for the moment to absorb the increase in the output of raw materials, until the industries begin to try to grow too fast for their supplies, and the price of raw cotton must rise progressively to put the brake on them. In practice, we shall expect a combination of the two kinds of adjustment we have looked at separately: the movements of the price of raw cotton will react on the rate of growth both of raw cotton output and of industrial capacity, checking one while it stimulates the other. But however the adjustment is shared, the turning point will appear. Propensities to grow at constant rates generate fluctuations of prices.

4.2. This example shows how a turning point in economic history can be generated out of constant propensities to grow, and without the intervention of any of those unpredictable and irregular changes which are commonly called the historical as distinct from the analytic factors in an economic problem. In principle it is not unrealistic, and the relations it illustrates may have played a part in the climacteric of the 1890s. But it is far from providing a general explanation of secular fluctuations. It cannot generate a downturn of prices. Once capacity tends to grow faster than raw material output, prices rise without limit; if raw-material output grows faster than even the fastest component of capacity, they fall without limit. But, in the actual world, downturns of prices have occurred, and price trends have not risen or fallen without limit. The evident explanation is that the potential rates of growth, both of raw material output and of industrial capacity, are changed from time to time by the march of events. The first has been checked by the exhaustion of resources, and raised by the opening of new regions and by technical advances in transport, cultivation and extraction. The second has been checked by upheavals during and after wars, and raised when nations have bestirred themselves and entered upon a new course of industrialisation.

4.3. Can we then provide any indication of the tendencies of growth of industrial capacity, relatively to those of primary products? Some indication is available if we can assume that in the long run the production of pig

iron is roughly proportional to the size of industrial capacity, while its fluctuations in the short run indicate (though not proportionally) the extent to which that capacity is utilised. A comparison of this production with that of a composite index of some outputs of primary products will then suggest the extent to which these outputs were keeping pace with the demand: not of course that the *trend* of the ratio through any period is significant, because this is bound to be affected by divergences between pig-iron production and industrial capacity, and between this capacity as a whole and that part which uses the particular raw materials which our index covers; but that any marked *change* in the trend will suggest a corresponding change in the scarcity of primary products. The results of such a comparison, using the world output of pig iron less Russia, are shown in Fig. 4. We notice the successive contrasts between 1872–94, 1894–1912, 1921–39 and

Fig. 4: Scarcity of Primary Products
1872–1951



1946–51. These are not inconsistent with our account of the origin of the movements of the wholesale price level.

5.0. We can now offer our own explanation of the secondary secular movements.

5.1. The relation between the rates of growth of world industrial capacity and the output of primary products has passed since 1815 through alternating phases of some twenty or thirty years in length. When industrial capacity tends to grow more quickly than the output of primary products, a shortage of these products is felt, and their prices rise, in terms of money, and also relatively to the price of industrial effort. When industrial capacity tends to grow more slowly than the output of primary products, the opposite effects follow. We can at present regard the observed length of these phases only as a fact of their epoch of history, and not as a property of the processes of growth which is likely to persist as long as growth continues.

5.2. When a phase of shortage of primary products sets in, the industrial

economies experience a rise in wholesale prices. This spreads through the economy: rises in the cost of raw materials raise the prices fixed for final products; the rise in the cost of living moves wage-earners to press for rises in money wages; with more or less lag, other money incomes are raised to maintain customary differentials, and this causes further rises in costs and prices. Where sellers fix their prices, their decisions are affected not only directly, through the rise in prime costs, but also indirectly, through a change in their valuation of the risk they take when they put a price up. At a time when prices of raw materials, and wages, are known to be generally rising, and when consequently such changes in price as other sellers announce are usually upward, the risk appears smaller that to raise one's own price will leave one isolated and exposed, out of line with one's competitors and with the expectations of one's customers. Decisions in this region of price-making are taken in uncertainty, and depend on expectations. The conspicuous movements of wholesale prices are a magnet which draws the expectations of many men into line with one another. A market environment [1] forms: each now believes that the trend is if anything upwards, because he thinks that that is what the others believe; and the belief justifies itself.

It must not be thought that this process is necessarily inhibited by the supply of money. There is no doubt that a restricted supply of money can stop prices from rising, but the evidence shows that actual restrictions have not usually been severe enough to do so: the quantity of money in circulation has adapted itself to independently originated increases in the flow of payments. The resistance to adaptation has been sufficient only to raise the long-term rate of interest gradually as the upward trend goes on.

The rise in the prices of the imports of industrial communities will make their balances of payments more adverse than they would have been otherwise, but Paish [2] has pointed out that for Great Britain at least this did not impose much restraint on the flow of internal payments, because the primary producers kept much of their accruals in sterling, and did not hold much of this idle. At the same time the primary producers' banks, with higher reserves and more prosperous customers, expanded credit. So for the community of the industrial economy and the primary producers together, a rise in wholesale prices did not merely transfer money income from one sector to the other, but raised the sum of income in the two; and similarly a fall of wholesale prices lowered it. "When 'customer' countries are enjoying favourable balances of payments, incomes in the world as a whole tend to rise, while when their balances are unfavourable world incomes tend to fall."

All these reactions to a rise in wholesale prices appear in the opposite direction when wholesale prices fall.

[1] Phelps Brown and Hart, "The Share of Wages in National Income," ECONOMIC JOURNAL, June 1952, para. 17.

[2] F. W. Paish, "Open and Repressed Inflation," ECONOMIC JOURNAL, September, 1953, p. 543. The point was made previously in Section VI of the same author's "Banking Policy and the Balance of International Payments," *Economica*, November 1936; reprinted in his *The Post-war Financial Problem* (1950).

5.3. The argument has already suggested the connection between the secondary secular movements in wholesale prices, the terms of trade and the rate of interest; it remains to bring in those in the real wages of the industrial economy. When a phase of shortage of primary products sets in, the rise of real income must be checked, most of all for the wage-earners, whose "basketful" contains the highest proportion of primary products. Rises in money wages might reduce this impact, and bring about some redistribution of income from other sectors, were it not that, in the soft market environment which is now developing, rises in money wages only raise costs and prices throughout the system, and there is no squeeze of other shares, save for some transfer from those whose money incomes lag. An insufficient rate of growth of raw-material supplies must check the growth of processing equipment: to entrepreneurs this check appears as a rise in costs keeping pace with rising prices, and it may be reinforced, as the rate of interest rises, by a worsening of the terms on which capital can be raised. Some home investment may none the less be diverted to house building, but investment in primary production will become attractive, and a larger part of the accumulation of the industrial economy will take place beyond its own bounds. Thus a period which superficially is one of prosperity, with ever-rising money totals of turnover and income, and a comfortable sense of the ability to bear some extra costs without embarrassment, is really one of comparative stagnation, because a community such as ours cannot raise its standard of living much faster than its intake of the basic materials.

When primary products become abundant, these features of the phase of shortage are all reversed: a time of downward pressure on prices, of a hard market environment and talk of depression is actually one of more rapid advance in the standard of living, in the wage-earners' standard most of all.

6.0. In sum, it appears that monetary changes have done little to cause or control the movements of prices. The long-period falls of prices were not due to shortage of money, and when the trend set the other way, our monetary institutions provided the needed means of payment. This was so before ever a moral obligation to maintain employment was accepted, and we cannot expect greater ruthlessness in the future. It remains true that a big enough change in the quantity of money can push the system over into inflation or deflation. It is also true that publicised changes in monetary policy, so long as the reactions to them continue to follow conventional lines, will influence expectations; and that changes in the rate of interest will affect some investment decisions. But the prospects of controlling price movements flexibly by monetary policy appear much poorer than would be inferred from the view which ascribes causal primacy to changes in the quantity of money; though not poorer, perhaps, than is really assumed in practice to-day, when "the struggle against inflation" would be needless if all that had to be done was to regulate the quantity of money.

This conclusion is of much importance to the United Kingdom, which not only shares in any general contemporary tendency to a wage–price spiral,

but is specially exposed to that spiral being set off by a rise in the cost of its imports. It appears that we cannot rely on central controls to do just so much as is necessary to restrain such tendencies, because the source of these lies not in a monetary equation but in the consensus of opinion of thousands of free agents. In these conditions the possibility of control is bound to depend on the understanding and responsibility shown by business-men and trade unionists generally. Given this, we are not solely at the mercy of the terms of trade, but have two ways in which to meet an adverse movement. First, the terms of trade which matter are not the net barter terms, but the quantity of imports which can be gained per unit of British effort, and each rise in productivity which increases our output of goods per man hour makes it easier for us to meet a demand from the world market for more British goods per unit of our imports. Second, it can become generally recognised, and an axiom of the public interest, that a rise in the prices of our imports, with the consequent rises in the cost of raw materials and the cost of living, must be regarded for the purpose of price-fixing and wage-fixing decisions as distinct in kind from other rises in costs, and as constituting a burden to be fairly shouldered rather than a charge to be automatically passed on.

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Appendix

Statistical Sources and Methods

Fig. 1(*a*): Wholesale Price Level.—1790–1850: Gayer, Rostow and Schwartz, *The Growth and Fluctuation of the British Economy*, 1790–1850, Vol. I, Pt. III, Ch. I, Table 39. 1850–1924: Jevons's index 1850–60, Sauerbeck's 1860 onwards, as given in Appendix A, Table II, in Layton and Crowther, *Introduction to the Study of Prices*. 1924–53: *Board of Trade Index*, old series, all items.

Yield of Consols.—1790–1830: T. S. Ashton, "Some Statistics of the Industrial Revolution in Great Britain," Table I, in *The Manchester School*, XVI, 2, May 1948; supplemented by Gayer, Rostow and Schwartz, *op. cit.*, Vol. I, pp. 47, 54, 221. 1830–50: Gayer, Rostow and Schwartz, *op. cit.*, Vol. I, pp. 221, 259, 289, 320. 1851–59: W. Page (ed.), *Commerce and Industry*, Table 120. 1860–1939: Phelps Brown and Hopkins, "The Course of Wage-rates in Five Countries, 1860–1939," Tables Id, IId, in *Oxford Economic Papers*, June 1950. 1939–present: *Annual Abstract of Statistics*.

Fig. 1(*b*): Volume of Imports Obtainable per Unit of British Labour. —(*a*) Index of money wage-rates (earnings from 1939), divided by (*b*) index of prices of British imports. (*a*) 1790–1850: Index made from following series, gaps in which were filled by rough estimate to complete annual entries; series combined with following weights, chosen in light of weights proportional to numbers of employees given by Bowley for 1840 in Table II of Appendix to his *Wages in the 19th Century*: Total 20; Agricultural 7, Industrial 13; the Industrial

divided, 1790–1805, into Building 5, Engineering 6, Printing 2; 1806–50, Building 3, Engineering 4, Printing 1, Cotton 5. *Agriculture.*—Bowley, *J.R.S.S.*, September 1899, Table at p. 562; weighted av. of England and Wales (6) and Scotland (1). *Building.*—Bowley, *J.R.S.S.*, March 1901, p. 112, index for Great Britain 1830–50, carried back on basis of series for London only at p. 107. *Engineering and Shipbuilding.*—Bowley and Wood, *J.R.S.S.*, March 1906, p. 190; unreliable before 1824. *Printing, compositors.*—Bowley and Wood, *J.R.S.S.*, December 1899, p. 708, Table I. *Cotton, factory operatives.*—G. H. Wood, *J.R.S.S.*, June 1910, Table 41. 1850–60: G. H. Wood, index for workman of unchanged grade, *J.R.S.S.*, March 1909, p. 102. 1860–1939: Phelps Brown and Hopkins, *loc. cit.* 1939–53: Ministry of Labour six-monthly wage census, average weekly earnings, all workers (*Ministry of Labour Gazette*). (*b*) From 1801: Table 26 of W. Schlote, *British Overseas Trade from 1700 to the 1930s*; carried back to 1798 by splicing with import price index given by A. H. Imlah, *Journ. Econ. Hist.*, November 1950.

Real Wages.—(*a*) above, divided by (*c*), index of cost of living. This index obtained, 1790–1860, by calculating linear regression of Bowley's cost of living index (*Wages and Income in the U.K.*, Table VII, p. 30) through 1880–1913 on the Jevons–Sauerbeck index of wholesale prices (Layton and Crowther, *Introduction to the Study of Prices*, Appendix A, Table II), and applying this regression to the index of wholesale prices obtained as above. 1860–1939: Phelps Brown and Hopkins, *loc. cit.* 1939–53: R. G. D. Allen, *Bulletin of London and Cambridge Economic Service*, February 1949, and tables in later Bulletins.

Fig. 2.—General source for 1937–52, *Commodity Year Books* (*CYB*), published by the Commodity Research Bureau, N.Y. Outputs are those of the whole world, so far as recorded, except where stated below. We removed cyclical fluctuations down to 1937 from those series in which they were evident, viz., copper, jute, pig iron, silk, by the following method. Each specific cycle was divided into nine equal periods, and where the boundary between two of these periods fell within a year the output of that year w distributed between them, so that a total output within each period could be estimated. The cyclical movement shown in the successive nine-period groups was then removed as if it were a season fluctuation. The corrected period entries were then regrouped by years. We smoothed the cyclically cleared series, and the other six series (except when they were five-yearly only), by taking a three-year moving average.

Sources for particular materials:

(1) Copper.—1879–1930: E. L. Knight, *Secular and Cyclical Movements in the Production and Price of Copper*, University of Pennsylvania Press, 1936, p. 147. 1931–51: *CYB*, 1942, p. 57; 1950, p. 81; 1952, p. 94; 1953, p. 103.

(2) Cotton.—Output that of the United States alone through 1901; spliced at 1902 with index of world output. 1830–1902: *Historical Statistics of the U.S.A. 1789–1945* (Bureau of the Census, 1949), p. 108. 1902–32: J. A. Todd, *The Marketing of Cotton* (1934), p. 235. 1932–37: Imperial Economic Committee, *Industrial Fibres* (1939). 1937–51: *CYB*, 1950, p. 86; 1953, p. 118.

(3) Jute.—From 1873 Indian exports only, spliced at 1892 with Indian crop, which in turn is spliced at 1922 with world output. 1873–92: *Review of the Trade of India* (Government of India, yearly). 1892–1922: *Area and Yield of Certain Principal Crops* (Government of India). 1922–37: *International Yearbook of Agriculture* (International Institute of Agriculture). 1937–51: *CYB*, 1950, p. 44; 1953, p. 58.

(4) LEAD.—1860–1935 (five-yearly only): Berg, Friedensberg and Sommerlatte, *Blei und Zink* (Stuttgart, 1950), pp. 78–9. 1935–52: *CYB*, 1950, p. 174; 1952, p. 196; 1953, p. 199.

(5) PIG IRON.—1830–1913: Sum of outputs in five countries: (*a*) the United Kingdom.—*Commerce and Industry* (ed. W. Page, 1919), p. 180. (*b*) the United States.—*Historical Statistics of the U.S.A. 1789–1945* (Bureau of the Census, 1949), p. 4. (*c*) Belgium. S. S. Kuznets, *Secular Movements in Production and Prices* (N.Y., 1930), p. 450. (*d*) France. Kuznets, *op. cit.*, p. 501. (*e*) Germany. H. Marchand, *Säkularstatistik der deutschen Eisenindustrie* (Essen, 1939), pp. 115–19. 1913–37: *Statistical Yearbook* (League of Nations)—World, excl. U.S.S.R. 1937–51: *CYB*, 1950, p. 161; 1952, p. 184; 1953, p. 188.

(6) SILK.—World output of exportable silk, through 1936; thereafter total world output. 1873–83 (five-yearly): E. Flügge, *Rohseide* (Leipzig, 1936), p. 109. 1885–1937: Chabrier, Morel et Cie, *Silk Report* (Lyons). 1937–51: *Commonwealth Economic Committee Reports*, 1948, p. 68; 1953, p. 65.

(7) TIN.—1851–1937: International Tin Research Bureau, *Statistical Yearbook* (The Hague, 1939), p. 15. 1937–52: *CYB*, 1950, p. 272; 1952, p. 231; 1953, p. 319.

(8) WHEAT.—1885–1932: M. K. Bennett, "World Wheat Crops 1885–1932", *Stanford Wheat Studies*, Vol. IX, pp. 239–74. 1932–37: *League of Nations Statistical Yearbook*. 1937–51: *CYB*, 1950, p. 288; 1953, p. 339.

(9) WOOL.—1850, 1860–99: W. Senkel, *Wollproduktion und Wollhandel im 19ten Jahrhundert* (Tübingen, 1901), p. 25. 1899–1900 (for link only): G. Blau, "Wool in the World Economy," *J.R.S.S.*, 1946, p. 228. 1900–36: T. A. Hamilton, *A Statistical Study of Wool Prices* (Texas, 1938), p. 56. 1936–37: Imperial Economic Committee, *Industrial Fibres* (1939), p. 41. 1937–52: *CYB*, 1950, p. 304; 1952, p. 359; 1953, p. 357.

(10) ZINC.—1845–1913: sum of outputs in Belgium, France, Germany and the United States, in S. S. Kuznets, *Secular Movements in Production and Prices* (N.Y., 1930), pp. 458, 509, 479, 382. 1913–37: *Yearbook of the American Bureau of Metal Statistics* (N.Y.). 1937–52: *CYB*, 1950, p. 311; 1953, p. 362.

FIG. 4.—(1) Output of pig iron, as under Fig. 2, cyclical pattern removed down to 1937, and smoothed by three-year moving average. This divided by (2) combined index (with equal weights) of outputs of some primary products, viz., all series of Fig. 2 except pig iron and lead; wheat included only from 1885.

INDUSTRIAL EUROPE'S TERMS OF TRADE ON CURRENT ACCOUNT, 1870–1953[1]

USING existing series, it is possible to construct, after a fashion, an index of the terms of trade of Industrial Europe on current account. This is intended to cover the development of the unit values or prices of services which enter the balance of payments, as well as those of merchandise trade.

The argument for combining the terms of trade of a number of countries into a single index is self-evident. For lack of other data, the assumption is frequently made that British terms of trade are representative of those of Industrial Europe. The increased availability of other national indexes in Europe, however, makes it more and more possible to dispense with this dubious statistical crutch.

The justification for extending the concept of the terms of trade to include services along with merchandise trade is less immediately obvious. Just as for many countries the balance of trade is an adequate approximation of the balance of payments on current account, so the price basis for dealings with foreigners is usually taken as indicated by the terms of trade on merchandise exports and imports. In a country like Norway, which earns 40% of its income from abroad from shipping, however, the necessity to include services is clear. To the extent that the prices of services behave differently from other export prices, the merchandise terms of trade are not very meaningful.

Even in less exceptional cases, however, the usual terms of trade (exports, f.o.b.; imports, c.i.f.) are likely to be misleading. It has widely been recognised that the development of the terms of trade of the United Kingdom cannot be taken as the mirror image of those of Britain's customers. For the change in the price relationships at the British border will not be the same as at her customers' borders if transport costs have developed differently from f.o.b. prices of commodities. To be significant, the merchandise terms of trade should be measured at the point where the goods change hands: f.o.b. exports and c.i.f. imports for those countries which carry none of their exports or imports; and c.i.f. exports and f.o.b. imports for countries which deliver their exports and fetch their imports.[2] If it is impossible to eliminate the cost of freight and insurance paid to one's own nationals from the c.i.f. price of imports, an approximation of the position

[1] This paper represents a portion of a larger research undertaking into Europe's terms of trade financed by the Merrill Foundation for the Advancement of Financial Knowledge. The writer was assisted by H. G. van der Tak and J. Vanek.

[2] Only if a country delivers none of its exports and carries all its imports is it satisfactory to measure the merchandise terms of trade on the basis of f.o.b. values for exports and imports, as do Canada and the United States, and to neglect transport charges.

can be reached through adding gross freights and insurance paid to the country's own nationals as an offsetting credit.

The treatment of interest and dividends raises greater conceptual and statistical difficulties. Those authorities who have begun to calculate price indexes for goods and services in the current account, for the purpose of deflating national-income statistics from money to real terms,[1] have treated interest and dividends as a transfer payment, like interest on the national debt, which is not deflated by a current price. The guess may be offered that the basis of this omission is more practical than theoretical. Certainly to the limited extent that the terms of trade may be used to measure the gains from trade, the "price"[2] of lending should be included among those of goods and services exported. Other things equal—as they must be if the terms of trade are to be used in this sense—a rise in an import price, say, of rubber, offset by an increase in earnings on rubber shares, involves no change in the terms of trade as distinct from a rise in the price of rubber reflected in increased wages and taxes abroad.

There are some purposes for which it is probably undesirable to include interest and dividends among export services, as when the terms of trade are studied as a guide to the distribution of savings between home and foreign investment. But for everyday use, assuming that the statistical difficulties can be overcome, there should be no distinction between the services of capital and the services of land, labor and capital in combination. It is, of course, possible to discuss *seriatim* the terms of trade on merchandise and shipping account and the change in income from foreign investment. The merit of combining the two into a single index is that one avoids the danger of regarding them as unrelated, and discussing the former without remembering to deal with the offsetting effects of the latter.

Statistical difficulties make it impractical to include other services, such as tourist expenditure, insurance, commissions, port charges, etc.[3] Moreover, they limit the correction for shipping and return on foreign investment to a painful degree. The index for shipping is primarily one for British tramps; that for return on foreign investment is also derived almost entirely from British data, and represents interest and remitted earnings divided by nominal capital investment. Both are applied to each country of Industrial Europe. Unit-value indexes for credits and debits for each country and the Industrial European indexes on current account and for merchandise only

[1] See the British Blue Book, *National Income and Expenditure, 1946–52*, H.M.S.O., August 1953. (The price series themselves are set out in A. A. Adams, "The Real Product of the United Kingdom," *Bulletin of the London and Cambridge Economic Service* (New Series), No. 6, September 1953); and Norwegian Central Bureau of Statistics, *National Accounts, 1930–39 and 1946–51* (Oslo, 1952), pp. 320–1.

[2] The "price" can only be approximated by the rate of earnings, which conceptually is very different from a price when changes in utilisation occur.

[3] For a detailed study which includes these items, and the price of capital, see C. Carbonnelle and E. S. Kirschen, "Les Termes des Echanges," *Revue de l'Institut de Sociologie*, 1949, pp. 419–46. This index is for Belgium for the single year 1946, compared with 1936–38.

TABLE I

Unit-value Indexes of Industrial European Current-account Credits, 1870–1953, Eight Countries and Combined

(Dollar relatives: 1913 = 100)

With Differences from Merchandise Export Unit-value Indexes
(+ current-account index exceeds export index)
(− export index exceeds current-account index)

Year.	United Kingdom.	Germany.	France.	Italy.	Netherlands.	Belgium.	Sweden.	Switzerland.	Industrial Europe unadjusted.
1870	113 +9	—	128 −3	—	—	(110) 0	—	—	121 +2
1871	113 +9	—	129 −3	—	—	(114) 0	—	—	122 +2
1872	123 +6	—	131 −4	—	—	(117) −1	—	—	129 −1
1873	128 +7	—	128 −2	—	—	120 −1	—	—	132 +1
1874	121 +8	—	123 −1	—	—	(117) −1	—	—	125 +1
1875	114 +8	—	118 −1	—	—	(115) 0	—	—	119 +2
1876	105 +7	—	116 −3	—	—	(111) −2	—	—	113 +2
1877	102 +9	—	115 −3	—	—	(110) −1	—	—	110 +2
1878	97 +8	—	109 −2	—	—	108 −1	—	—	105 +2
1879	94 +9	—	111 −3	—	—	(106) −1	—	—	103 +2
1880	96 +8	—	112 −4	—	—	(104) −1	—	—	105 +2
1881	94 +9	117 −1	112 −3	—	—	(103) −1	—	—	103 +2
1882	94 +9	117 −2	111 −3	—	—	(101) −1	—	—	103 +2
1883	92 +8	115 −2	107 −1	—	—	100 0	—	—	101 +3
1884	89 +8	108 −1	102 0	—	—	(95) 0	—	—	96 +3
1885	84 +7	101 0	98 0	—	—	(91) −1	—	—	91 +3
1886	81 +7	98 −1	95 0	—	—	86 +1	—	—	88 +3
1887	80 +7	97 −1	93 0	—	—	(87) +1	—	—	87 +3
1888	83 +8	99 −1	97 −1	—	—	(87) +1	—	—	89 +2
1889	86 +8	102 −1	100 0	—	—	87 0	—	—	92 +2
1890	88 +6	101 −2	101 −2	—	—	(87) +1	—	—	93 +3
1891	87 +5	97 −1	95 0	—	—	(86) +1	—	—	91 +2
1892	83 +5	93 0	89 0	—	—	(84) +1	—	—	87 +2
1893	80 +3	90 −2	92 −2	—	—	82 0	85 0	—	85 0
1894	78 +4	85 −1	83 0	—	—	(84) 0	76 +1	—	81 +1
1895	76 +4	85 −1	84 0	—	—	(86) 0	74 0	—	80 +1
1896	77 +4	87 −1	83 0	—	—	(88) 0	75 +1	—	81 +1
1897	77 +5	87 −1	85 0	—	—	(89) −1	79 +1	—	82 +1
1898	77 +5	88 0	89 −1	—	—	(92) −1	81 +2	—	83 +1
1899	80 +3	91 −2	92 −3	—	—	95 −1	81 +1	—	87 0
1900	90 +1	96 −1	95 −2	—	—	(95) −1	88 +2	—	93 −1
1901	83 −2	89 −2	87 −2	—	—	(94) −1	82 0	—	86 −2
1902	80 −1	87 −2	88 −2	—	—	94 −1	81 −1	—	85 −2
1903	81 −1	88 −2	90 −3	—	—	(95) −1	82 −1	—	86 −2
1904	82 −1	89 −2	92 −3	—	—	(97) −1	84 0	—	87 −2
1905	86 +2	94 0	98 0	—	—	(100) 0	82 0	—	92 +1
1906	89 0	96 −1	101 −1	—	—	(102) 0	86 −1	—	94 −1
1907	93 −1	98 −1	100 −1	—	—	103 0	93 −2	—	97 −1
1908	89 −2	96 −1	95 0	—	—	(101) 0	92 −3	—	93 −2
1909	88 0	92 0	100 −1	—	—	99 0	88 −2	—	92 −1
1910	91 −1	93 0	101 −2	—	—	(99) 0	91 −2	—	94 −1
1911	94 0	95 0	102 −2	—	—	(99) 0	92 −1	—	96 −1
1912	99 +3	99 +1	104 0	—	—	(100) 0	100 +2	—	100 +1
1913	100 0	100 0	100 0	100 0	100 0	100 0	100 0	100 0	100 0
1920	185 −85	—	161 −5	150 +11	—	—	282 +5	180 −55	168 −20
1921	145 −68	82 +1	127 −7	101 +2	126 −27	—	201 −15	152 −32	129 −17
1922	139 −43	65 +1	142 −11	(110) 0	123 −17	—	159 −8	149 −24	123 −11
1923	141 −39	114 0	130 −7	118 −1	122 −20	—	161 −10	141 −16	133 −14
1924	136 −37	125 −3	132 −8	109 −1	122 −21	—	154 −9	140 −17	131 −15
1925	141 −42	130 −3	128 −7	110 −1	131 −21	130 −2	158 −9	149 −16	134 −15
1926	141 −32	131 −2	108 0	119 −1	127 −13	(118) −1	163 −9	142 −11	130 −9
1927	138 −27	132 −2	109 −1	126 −1	126 −10	107 0	148 −11	138 −10	128 −10
1928	134 −28	131 −3	108 −1	118 −1	125 −10	110 −1	145 −12	141 −11	126 −10
1929	134 −25	130 −2	104 −1	109 −1	124 −9	114 −1	142 −12	141 −10	125 −8
1930	121 −30	119 −5	99 −2	91 −1	108 −13	108 −1	128 −15	133 −10	114 −11
1931	100 −26	105 −3	81 −3	76 0	89 −10	93 −2	106 −13	114 −14	96 −9
1932	73 −18	92 −3	67 −5	61 0	67 −11	76 −2	74 −8	98 −18	76 −9
1933	86 −24	106 −4	78 −6	68 0	77 −13	89 −3	86 −7	113 −21	87 −12
1934	104 −28	129 −7	97 −10	82 0	95 −17	109 −3	104 −8	139 −25	106 −16
1935	104 −26	129 −3	95 −10	80 0	94 −15	(91) −1	100 −8	138 −23	104 −16
1936	111 −24	132 −2	95 −6	79 0	97 −12	93 −1	107 −6	140 −18	108 −11
1937	125 −20	142 −1	95 +3	76 +4	112 −5	106 −1	123 −3	134 −12	118 −5
1938	119 −28	147 −3	82 +3	76 +2	104 −12	98 −1	127 −10	130 −13	113 −11
1948	245 −51	—	190 −18	173 +6	260 −58	248 −31	345 −16	302 −72	239 −30
1949	228 −55	237 0	176 −9	162 +4	221 −55	241 −26	291 −18	288 −75	219 −29
1950	182 −39	226 0	147 −6	140 +1	186 −31	202 −19	236 −15	274 −78	182 −22
1951	230 −30	276 +1	177 −2	179 +11	238 −17	277 −27	383 −6	304 −82	233 −18
1952[1]	221 −52	291 −5	187 −7	169 +5	228 −31	274 −29	350 −34	299 −87	231 −27
1953[1]	206 −58	267 −11	175 −7	160 −4	200 −30	228 −27	296 −43	264 −110	214 −30

[1] Based on preliminary figure for return on foreign investment. Figures in parentheses interpolated.

TABLE II

Unit-value Indexes of Industrial European Current-account Debits, 1870–1953, *Eight Countries and Combined*

(Dollar relatives: 1913 = 100)

With Differences from Merchandise Import Unit-value Indexes
(+ current-account index exceeds import index)
(− import index exceeds current-account index)

Year.	United Kingdom.		Germany.		France.		Italy.		Nether-lands.		Belgium.		Sweden.		Switzer-land.		Industrial Europe un-adjusted.	
187[illegible]	120	0	—		115	0	—		—		(108)	0	—		—		118	−1
187[illegible]	115	0	—		120	−1	—		—		(110)	0	—		—		117	+1
1872	123	0	—		125	−1	—		—		(112)	0	—		—		123	0
1873	123	0	—		123	−1	—		—		114	0	—		—		122	−1
1874	120	0	—		116	0	—		—		(114)	0	—		—		118	−1
1875	116	0	—		112	0	—		—		(113)	0	—		—		115	0
1876	113	0	—		112	−1	—		—		(113)	0	—		—		113	−2
1877	113	0	—		109	−1	—		—		(112)	0	—		—		112	0
1878	106	0	—		103	0	—		—		112	0	—		—		106	0
1879	102	0	—		103	0	—		—		(110)	0	—		—		103	0
1880	107	0	—		106	−1	—		—		(107)	0	—		—		107	0
1881	106	0	106	0	104	0	—		—		(105)	0	—		—		105	−2
1882	105	0	106	0	101	0	—		—		(103)	0	—		—		104	−1
1883	103	0	104	0	95	0	—		—		100	0	—		—		101	−1
1884	98	0	99	0	91	0	—		—		(96)	0	—		—		96	−1
1885	92	0	91	0	88	0	—		—		(92)	0	—		—		91	+1
1886	86	0	90	0	87	0	—		—		88	0	—		—		87	0
1887	86	0	91	0	85	0	—		—		(88)	0	—		—		87	0
1888	88	0	90	0	85	0	—		—		(87)	0	—		—		[illegible]	0
1889	89	0	94	0	90	0	—		—		87	0	—		—		9[illegible]	0
1890	88	0	93	0	91	0	—		—		(85)	0	—		—		90	0
1891	89	0	90	0	88	0	—		—		(83)	0	—		—		89	0
1892	86	0	85	0	83	0	—		—		(81)	0	—		—		85	0
1893	85	0	84	0	80	0	—		—		79	0	100	−1	—		84	0
1894	78	0	78	0	77	0	—		—		(80)	0	92	0	—		78	0
1895	75	0	79	0	76	0	—		—		(81)	0	91	0	—		77	0
1896	77	0	78	0	77	0	—		—		(82)	0	90	0	—		78	0
1897	77	0	79	0	77	0	—		—		(85)	0	89	0	—		78	0
1898	77	0	80	0	79	0	—		—		(84)	0	91	0	—		78	−1
1899	79	0	84	0	83	0	—		—		85	0	93	−1	—		81	−1
1900	85	0	89	0	89	0	—		—		(85)	0	100	−1	—		87	0
1901	82	0	84	0	80	0	—		—		(84)	0	93	−1	—		83	0
1902	82	0	85	0	79	0	—		—		84	0	93	−1	—		83	0
1903	84	0	85	0	82	0	—		—		(87)	0	94	−1	—		85	0
1904	85	0	87	0	82	0	—		—		(90)	0	94	−1	—		86	0
1905	86	0	91	0	84	+1	—		—		(94)	0	96	0	—		88	0
1906	90	0	93	0	90	+1	—		—		(98)	0	98	0	—		92	0
1907	94	0	96	0	94	0	—		—		101	0	100	0	—		96	+1
1908	90	0	89	0	86	+1	—		—		(98)	0	95	0	—		90	0
1909	92	0	92	0	90	0	—		—		95	0	96	0	—		92	0
1910	99	0	94	0	95	0	—		—		(96)	0	98	0	—		96	0
1911	97	0	96	0	97	0	—		—		(97)	0	99	0	—		97	0
1912	98	0	100	0	100	0	—		—		(98)	0	100	0	—		99	0
1913	100	0	100	0	100	0	100	0	100	0	100	0	100	0	100	0	100	0
1920	214	0	—		166	−24	201	0	—		—		245	0	231	−8	189	−7
1921	151	0	105	0	118	−9	138	0	134	−5	—		165	0	159	−5	133	−4
1922	138	0	98	0	109	−4	(123)	0	127	−3	—		140	0	137	−3	122	−1
1923	140	0	128	0	111	−2	123	0	131	−3	—		129	0	136	−2	127	−3
1924	141	0	134	0	110	−2	120	0	134	−3	—		126	0	141	−3	130	−1
1925	154	0	136	−1	122	−1	129	0	142	−4	130	−2	137	0	148	−3	140	−1
1926	142	0	124	−1	107	0	120	−1	132	−2	(122)	−1	131	0	141	−2	129	−1
1927	136	0	123	−1	115	0	128	−1	130	−2	113	−1	125	0	145	−2	127	−1
1928	137	0	125	−1	114	0	120	−1	130	−2	114	−1	124	0	144	−2	129	+1
1929	134	0	124	−2	108	0	117	−1	126	−2	109	0	123	−1	141	−2	124	−1
1930	117	0	107	−2	92	0	102	0	114	−2	97	0	111	−1	127	−2	108	−1
1931	88	0	81	−2	75	0	80	0	89	−1	74	0	94	−2	109	−2	84	−1
1932	64	0	60	−2	64	0	62	0	72	−1	62	0	69	−1	92	−2	65	0
1933	74	0	71	−2	74	0	73	−1	79	−1	72	−1	78	−1	107	−2	75	−1
1934	93	0	91	−3	92	−1	89	−1	93	−1	87	−1	92	−1	139	−3	94	0
1935	93	0	97	−3	90	0	90	−1	97	−1	(82)	0	92	0	126	−3	94	−1
1936	98	0	102	−3	93	0	96	−1	97	−1	88	0	91	0	122	−2	98	0
1937	111	0	112	−3	94	0	108	−1	112	−2	86	0	100	0	120	−2	107	−1
1938	103	0	105	−3	83	0	103	−1	104	−2	80	0	99	0	116	−2	100	0
1948	226	−19	—		196	−7	235	0	283	−19	189	−6	245	0	270	−31	219	−12
1949	211	−18	179	0	185	−7	213	0	252	−16	174	−10	288	0	244	−27	204	−12
1950	180	−14	221	0	168	−6	190	0	215	−12	174	−10	194	0	223	−25	188	−10
1951	235	−23	281	0	213	−10	242	0	258	−18	211	−9	247	0	267	−32	239	−18
1952[1]	229	−23	267	0	207	−10	235	0	257	−19	192	−8	258	0	262	−31	231	−14
1953[1]	199	−24	231	−3	191	−5	215	−5	229	−15	182	−8	239	0	243	−29	208	−14

[1] Based on preliminary figure for return on foreign investment.

Figures in parentheses interpolated.

have been combined on the basis of quantity weights, or more accurately, values expressed at constant prices.[1]

The results of these calculations are set out in the accompanying tables and charts. Tables I and II present the national and combined series for

TABLE III

Industrial European Freight Rates and Rates of Return on Foreign Investment

(Dollar relatives: 1913 = 100)

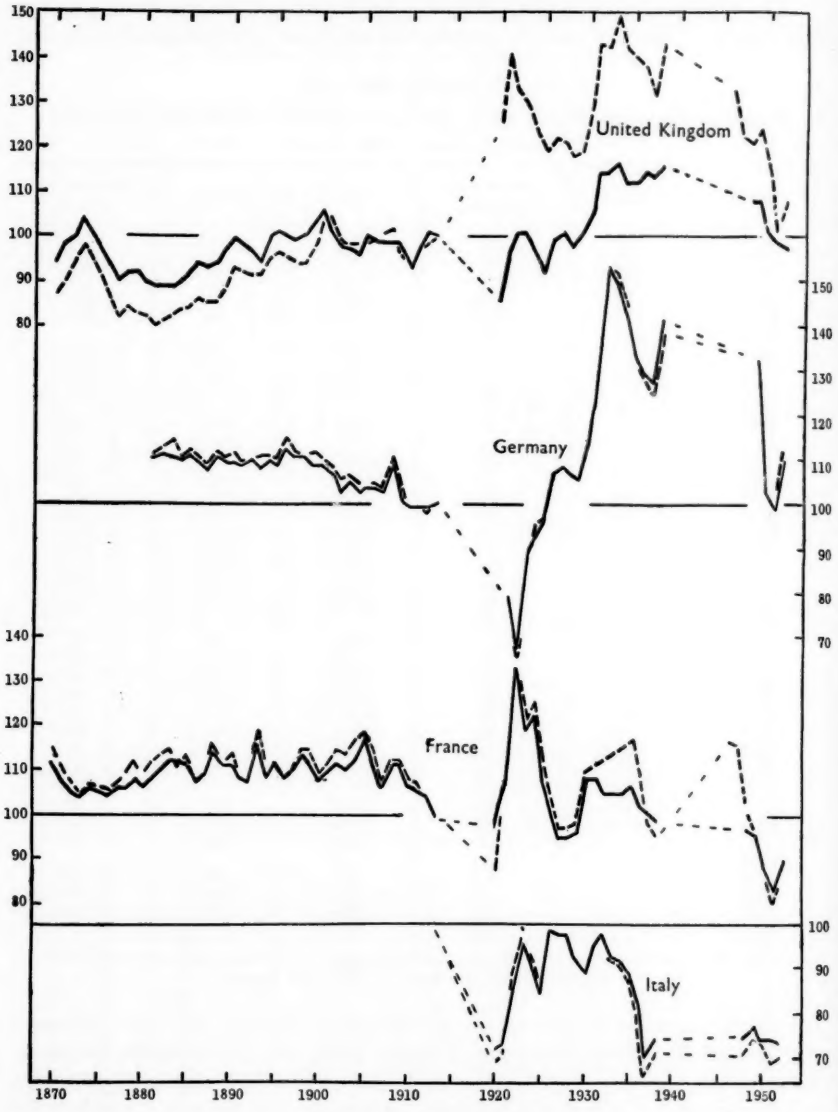
Year.	Freights.	Investment returns.	Year.	Freights.	Investment returns.
1870	195	110	1906	77	100
1871	195	110	1907	78	100
1872	194	110	1908	67	100
1873	218	110	1909	71	100
1874	203	110	1910	74	100
1875	186	110			
1876	189	96	1911	84	100
1877	193	96	1912	113	100
1878	167	96	1913	100	100
1879	162	96			
1880	165	96	1920	330	80
			1921	124	72
1881	168	96	1922	111	83
1882	156	96	1923	105	90
1883	144	96	1924	101	87
1884	125	96	1925	102	95
1885	111	96	1926	110	101
1886	106	91	1927	110	101
1887	105	91	1928	99	101
1888	115	91	1929	97	104
1889	130	91	1930	79	94
1890	112	91			
			1931	74	72
1891	107	91	1932	55	52
1892	91	91	1933	64	60
1893	89	83	1934	76	74
1894	84	83	1935	76	77
1895	79	83	1936	86	84
1896	86	83	1937	129	90
1897	88	83	1938	98	84
1898	99	83			
1899	92	83	1948	268	93
1900	106	83	1949	205	85
			1950	154	77
1901	77	83			
1902	73	83	1951	320	88
1903	75	83	1952	203	83 prel.[1]
1904	76	83	1953	157	78 prel.
1905	77	100			

[1] Final figure 85, not included in Tables I and II.

the eight countries which make up Industrial Europe for this purpose—the United Kingdom, Germany, France, Italy, the Netherlands, Belgium-Luxemburg, Sweden and Switzerland—for credits and debits respectively, together with the differences between these series and those for merchandise trade alone. The terms of trade on merchandise and on current account

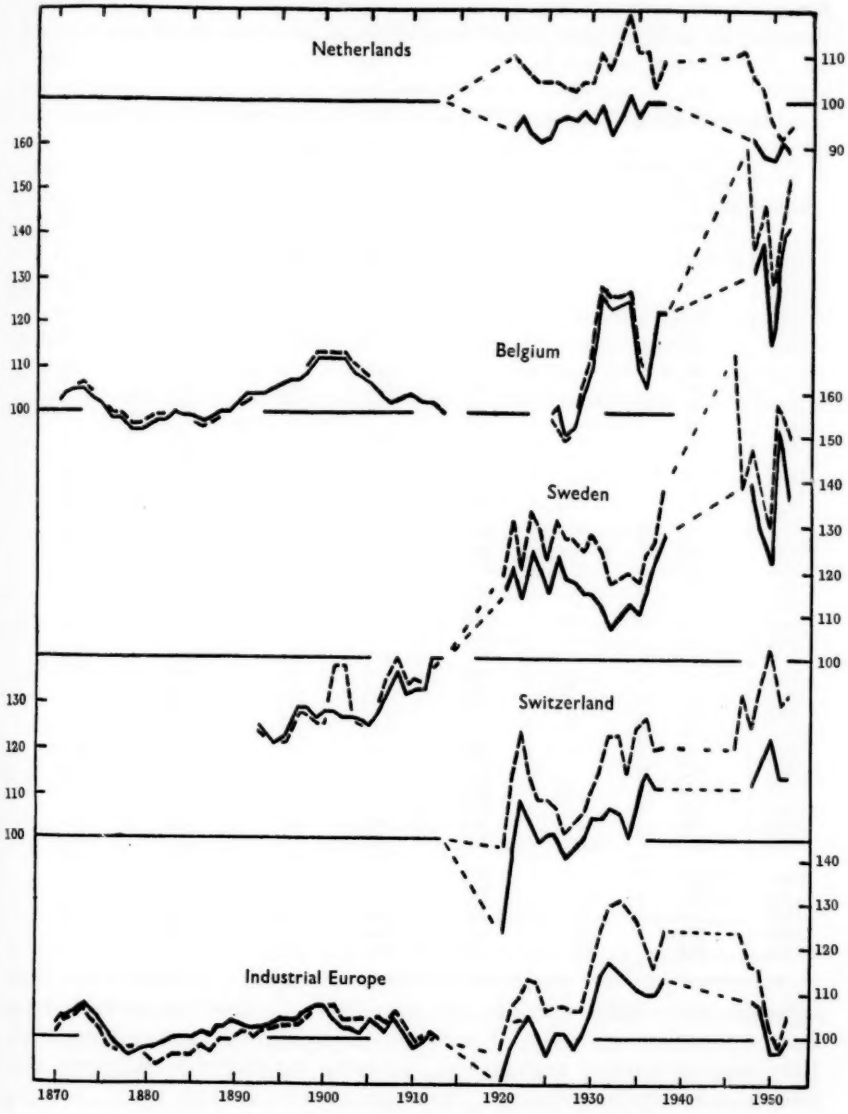
[1] The crudeness of this method is apparent in a case like Germany, when default on foreign loans, which should reduce the return on foreign investment at an unchanged weight, is reflected in an unchanged index (the Kindersley figures) and a very much reduced weight.

Terms of Trade of Industrial Europe—I



——— Terms of Trade on Current Account.
– – – – – – Terms of Trade in Merchandise.

Terms of Trade of Industrial Europe—II



——— Terms of Trade on Current Account.
– – – – – – Terms of Trade in Merchandise.

are portrayed by countries and for Industrial Europe in the charts. Table III presents the dollar indexes of rates of shipping freight and return on foreign investment. Table IV sets out the terms of trade of Industrial Europe in several ways: on merchandise account, unadjusted; and

TABLE IV

Industrial Europe's Terms of Trade on Merchandise and on Current Account

(Dollar relatives: 1913 = 100)

Year.	Merchandise unadjusted.	Merchandise adjusted.	Current account.	Year.	Merchandise unadjusted.	Merchandise adjusted.	Current account.
1870	101	—	103	1906	104	107	103
1871	104	—	105	1907	103	104	101
1872	103	—	105	1908	106	107	104
1873	106	—	108	1909	101	103	100
1874	104	—	106	1910	99	100	98
1875	102	—	104				
1876	98	—	100	1911	100	101	99
1877	97	—	98	1912	100	101	101
1878	98	—	96	1913	100	100	100
1879	98	—	97				
1880	96	—	98	1920	96	96	89
				1921	107	108	97
1881	94	—	98	1922	109	110	101
1882	95	—	99	1923	113	114	105
1883	96	—	100	1924	112	113	101
1884	96	—	100	1925	106	108	96
1885	96	—	100	1926	107	109	101
1886	98	—	101	1927	107	109	101
1887	97	—	100	1928	106	108	98
1888	99	—	102	1929	106	109	101
1889	99	—	102	1930	115	119	106
1890	100	—	104				
				1931	124	129	114
1891	101	—	103	1932	130	136	117
1892	100	—	102	1933	131	138	115
1893	102	—	102	1934	129	137	113
1894	102	—	103	1935	127	135	111
1895	103	—	104	1936	121	130	110
1896	103	—	104	1937	115	124	110
1897	103	—	104	1938	124	134	113
1898	104	—	106				
1899	106	—	107	1947	123	125	—
1900	107	115	107	1948	116	118	109
				1949	115	118	107
1901	107	113	104	1950	103	106	97
1902	104	111	102				
1903	104	109	102	1951	98	102	97
1904	104	108	101	1952	105	109	100
1905	103	109	104	1953	110	115	103

adjusted, since 1900, to eliminate the effect of trade within Industrial Europe in which the terms of trade, in theory, are always unchanged at 100; and on current account, *i.e.*, covering merchandise, shipping and returns on foreign investment. The charts go only through 1952.

It is not intended to analyse these series in detail in the brief space of an article already burdened with numbers and statistical detail. A few points of interest may be noted, however, under all the normal reservations appropriate to the interpretation of indexes of net barter terms of trade.

1. Whether one uses the merchandise or the current-account series, the British terms of trade are not representative of those of Industrial Europe as a whole. This is true in practically every period. The improvement of the merchandise terms of trade of Europe from 1881 [1] to 1900 is far smaller than that of Britain: this is the result of the fact that French and German export prices do not rise nearly so much as British.[2] The deterioration in the terms of trade from 1900 to 1913 is larger, especially when the index of Industrial Europe is adjusted to exclude the pull of the terms of trade within Industrial Europe toward 100. Again, the improvement in the terms of trade from 1913 to the twenties is less pronounced for Industrial Europe as a whole than for Britain.

On this showing, the use of Britain's terms of trade to represent those of Industrial Europe as a whole is not warranted.

2. On either merchandise or current account, the cumulative terms of trade of the various countries of Europe develop very differently. Compared with 1913, Belgium, Sweden and Switzerland find themselves in a most favored position; Italy in the ruck. The actual figures for 1952 and 1953 are worth reproducing:

Terms of Trade of Countries of Industrial Europe

Price of exports ÷ price of imports; 1913 = 100

	Merchandise Account.		Current Account.	
	1952.	1953.	1952.	1953.
Belgium–Luxemburg	152	134	143	125
Sweden	149	142	136	124
Switzerland	132	138	114	109
Germany	111	119	109	116
United Kingdom	108	118	97	104
Netherlands	94	94	89	87
France	89	93	90	92
Italy	70	75	72	74
Combined Index	105	110	100	103
Combined Index—Adjusted	109	115	n.a.	n.a.

If one were to move to earlier dates for those series which extend before the First World War, the dispersion would be increased, although an extension of the German series to the 1870s, as noted above, would considerably alter the cumulative picture in that country.

[1] Comparison for the period 1870–80 is impossible because of the lack of a German index. It is clear from a separate calculation for the single year 1872, however, that German export prices (but not import) behaved very differently from French or British, standing at 193 in 1872, on the basis of 1913 as 100, as compared with 121 for Britain and 135 for France. This was the consequence, of course, of the greater inflation in Germany than elsewhere in 1872–73.

[2] Contrast A. K. Cairncross, *Home and Foreign Investment, 1870–1913* (Cambridge University Press, 1953), p. 190.

The gap between the leading countries and Britain and Germany narrowed sharply in 1953 from 1952, as iron and steel and timber product prices fell along with raw-materials unit values generally. On current account Germany with little or no income from foreign investments passed in rank the creditor country, Switzerland. The movement was not carried far into 1954, however, and the generalization appears to hold good, well after the peak of the Korean commodities boom, that the small highly developed countries of Europe have enjoyed more favorable terms of trade than the larger countries or the agricultural group.

The explanation of the leadership of Sweden, Switzerland and Belgium in terms of trade, and the unhappy estate of Italy and to a lesser degree France, would appear to be associated with the different states of development of the several countries. On occasion as a country develops, the long-run reduction in costs in existing commodities brings about a considerable decline in export unit values and a "deterioration" in the net barter terms of trade, however much the country may gain if measured by the double factoral terms of trade. Such an example is found in the considerable decline in Britain's terms of trade from 1815 to 1870, and in the decline in the shipping index from 1870 to 1890.

Opposed to this influence, however, and apparently dominant in the present cases, there would seem to be a distinct terms-of-trade effect connected with innovation and the introduction of new goods in fields of high income elasticity and widening acceptance (favorable taste change.)[1] Sweden and Switzerland in particular have benefited from their market development in ball-bearings, pulp and paper, refrigerators, watches, special machine tools. Italy has suffered setbacks in one market after another—silk, coral, sulphur, marble, marble and alabaster statues, wines. There is a considerable question whether the terms of trade help shape the rate of development, the speed of development the terms of trade, or whether both are responsive to deep-seated forces, such as capacity for invention and innovation, and adaptability of resources in following up on products which pass the market test. To the extent that a faster rate of development turns the terms of trade favorable, we have another manifestation of the truth that "to him that hath shall be given."

3. The practice of measuring Europe's terms of trade by the relation between raw-material and manufactured-goods prices, as does Schlote and many who follow him directly or by implication,[2] leaves out of account the

[1] For an important article which distinguishes between innovations which introduce new goods into international trade, and those which reduce costs in existing commodities, see Henry Tyszynski, "World Trade in Manufactured Commodities, 1899–1950," *Manchester School*, September 1951, pp. 272–304.

[2] W. Schlote, *British Overseas Trade from 1700 to the 1930s* (Oxford: Blackwell, 1952), pp. 154–5. These figures are accepted as an indication of the serious decline in the terms of trade of underdeveloped countries by United Nations, *Economic Development of Latin America and its Principal Problems* (New York, 1949); United Nations, *Relative Prices of Exports of Under-developed Countries* (New York, 1949); and H. W. Singer, "The Distribution of Gains between Investing and Borrowing Countries," *American Economic Review*, May 1950, pp. 473–85.

importance of primary products in European exports and ignores the very different behavior of shipping and return on foreign investment as compared with manufactured goods.

The difference between British and other Industrial European terms of trade in the period prior to 1913 is mainly attributable to the price of coal, an export commodity of growing importance in British trade up to the First World War.

The shipping index fluctuates as a caricature of a primary commodity, falling by two-thirds from 1873 to 1902, and reaching sharp cyclical peaks in 1889, 1900, 1920, 1939 and 1951.

Still a third offset is provided in the return on foreign investment, which fluctuates cyclically like a raw material after the First World War, but has a much more pronounced downward trend. While the index as a whole must be taken with a certain amount of scepticism, part of the downward trend appears to be due to the depreciation of sterling against dollars, and part to a change in the contractual relations between investors and countries where investment is made.

The use of a dollar index to measure the loss in terms of trade in the income on foreign bonds is appropriate, since on a rough purchasing-power-parity concept the greater inflation in sterling than in dollar countries represents a loss to holders of debt and a gain for debtors. In real terms, of course, the loss is still greater, since the present indexes do not take account of the depreciation of the dollar in goods. On the 1913 base, return on foreign investment stands at 80, commodity prices at 250.

The contractual relationship between investors and country of investment has been changed by default, blocking of returns, multiple-exchange devices, re-negotiation of concessions, discriminatory and increased non-discriminatory taxes, increased wage-rates, etc. Here is one area in which the underdeveloped countries have been able to affect their terms of trade and have done so on a wide scale. The consequences of these "favorable" developments in the terms of trade in the short run, however, may not redound to the benefit of these countries in the longer term.

4. For Industrial Europe as a whole, taking the terms of trade on current account instead of those for exports f.o.b. and imports c.i.f., the total movement of the terms of trade becomes very much narrowed. The merchandise terms of trade moved within a more confined range for Europe as a whole than for the United Kingdom. Apart from 1881–82, 1923–24 and 1930–49, they stay within the range from 96 to 110. (A considerably wider movement is found if one deals with the terms of trade of Industrial Europe with the outside world, since this eliminates the pull toward stability of trade within Industrial Europe on which the terms of trade by definition—at least on an f.o.b. basis—are 100.)

In changing to the terms of trade on current account, however, the exceptions are reduced to the single year 1924, and the period 1930–38. More significant, the magnitude of the exceptions is reduced. At their highest, in 1933, the terms of trade on merchandise account stand at 131

(138 eliminating the influence of intra-Industrial European trade). Those on current account for the same year are 115.[1] The 1923 merchandise peak of 113 becomes a current-account peak of 105.

In addition, the correction moderates short-run cyclical movements. The 1920–21 improvement in terms of trade is reduced from 12 percentage points to 8. The decline of 6 points from 1936 to 1937, and gain of 9 points the following year (on the unadjusted merchandise index) is smoothed to none and 3, respectively. The impact of the Korean crisis and the depreciation of sterling on the terms of trade remains large, however, and the current-account index shows a decline of 10 points from 1949 to 1951 for Industrial Europe, as compared with 12, unadjusted, for the merchandise index. For Britain alone, however, the decline in the two indexes is 23 points for merchandise and only 13 for current account.

On this showing, the terms of trade of Industrial Europe have remained practically unchanged over the seventy years from 1870 to 1950, despite wide variations in those of the separate countries within the total complex, and different behavior of the prices of merchandise exports, merchandise imports, freight rates and return on foreign investment. No matter how much the development of prices has redistributed income between countries in Industrial Europe and, within separate countries, between consumers on the one hand, and ship owners and foreign investors on the other, the change *vis-à-vis* outside countries has on balance been small.

For an industrial country with a merchant marine and foreign investments it may be, indeed, that the merchandise terms of trade have more significance in measuring the internal redistribution of income produced by foreign stimuli than in reflecting the international gains of trade. This would add a still further qualification with which it is necessary to surround the concept of the net barter terms of trade on merchandise exports and imports.

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STATISTICAL APPENDIX

1. *Merchandise Unit-value Series*

(a) *United Kingdom.* For the period 1870–1913, the Schlote series for export and import prices (not for primary products imports and manufactured exports) were used (W. Schlote, *British Overseas Trade from 1700 to the 1930s* (Oxford: Blackwell, 1952), pp. 175–8) in preference to the somewhat different figures of A. H. Imlah ("The Terms of Trade of the United Kingdom, 1798–1913,"

[1] It is impossible to adjust the current-account index to eliminate the effects of intra-European trade for lack of regional material on payments for services. There is some justification, however, for believing that a majority of the dampening effect of the inclusion of indexes for shipping and return on foreign investment would apply to trade outside the area. There would thus be no reason to expect the relationship between the terms of trade unadjusted and adjusted to narrow from that already calculated for merchandise (with its imperfections), if it were possible to adjust the series on current account.

Journal of Economic History, November 1950, pp. 170–94). This choice was made, despite the fact that the Schlote import series refers to general, rather than special, trade on the basis of independent calculations of changes in unit values in 1900 as compared with 1872, and 1913 as compared with 1900, which closely supported Schlote. It is believed that the difference in the behavior of unit-value indexes between general and special imports in the period since 1870 cannot exceed 1½%.

From 1913 to 1953 the indexes of the Board of Trade were used, taking advantage, down to 1947, of the linking of the several segments made by the Board of Trade itself (*Board of Trade Journal*, August 4, 1951, pp. 226 and 228).

(b) *Germany.* The Bowley, Beveridge and Molodowsky indexes have been discarded in favor of that of F. Soltau (" Statistische Untersuchungen über die Entwicklung and die Konjunkturschwankungen des Aussenhandels," *Vierteljahrshefte zur Konjunkturforschung*, 1926, Erganzungsheft 2, p. 44), which covers the period 1881–1913. Unhappily, the omission of a German index for the 1870s lowers the starting level of export prices and gives an upward bias to the terms of trade, since the inflation of 1873 was more pronounced in Germany than in Britain.

For the inter-war years we have taken the Paasche index of the Statistische Reichsamt (not the chained index); for the post-war years the calculations of the Statistische Bundesamt. Some doubt attaches to the 1938–50 link, because of territorial changes. The 1949 figure, based on a dollar index, is also weak. These and similar official figures for other countries may be found in the League of Nations, *Memorandum on International Trade and Balances of Payments, 1912–1926*, Volume I, pp. 25, 206; *Review of World Trade, 1938*, Annex II, pp. 65–81; and United Nations *Monthly Bulletin of Statistics*, May 1953. The post-war indexes are described in the 1950 supplement to the *Monthly Bulletin of Statistics*, pp. 58–81.

(c) *France.* From 1871 to 1880 the figures are those of A. W. Flux, " Price Movements in the Foreign Trade of France," *Journal of the Royal Statistical Society*, 1900, pp. 480–4; from 1881 to 1913, the series of H. D. White (*The French International Accounts, 1880–1913* (Cambridge, Mass.: Harvard University Press, 1933), Chapter X) based on official values are preferred to those using market quotations, although White employs the latter. This is because the series on market quotations are limited in coverage and, for exports, unweighted.

For the inter-war and post-war years the official French series have been used. The 1913 links were computed by the use of value relatives and the volume indexes contained in *Bulletin de la Statistique Générale*, April 1929, p. 285.

(d) *Italy.* Index numbers are available only for the inter-war and post-war years, and from official sources. In the latter period the Fisher index was taken because of the wide disparity between the Laspeyres and Paasche calculations, amounting, in the direct comparison of 1952 on 1938, to 28% in the case of exports and 36% for imports.

(e) *Netherlands.* There is no series prior to 1921. An inter-war series beginning then (Centraal Bureau voor Statistiek, *Statistische en econometrische onderzoekingen*, 2nd quarter, 1951, pp. 112–20) cannot be connected to 1913 because of the fact that current unit values are not available for that year. Prior to the First World War, Dutch trade figures were kept on the basis of official unit values, unchanged from year to year, the bulk of which went back to 1845. In addition, the distinction between general and special trade is blurred in this period, and much of the transit trade with Germany is actually reported as special;

F. Hilgerdt believes that as much as two-thirds of Netherlands " special " trade in 1913 may in fact be transit.

A link to 1913 was constructed by using relatives of market prices (*Jaarcijfers voor Nederland 1929*, pp. 113, 114) weighted in accordance with the Paasche formula and the inter-war trade pattern. It was necessary in this procedure to omit many items for which unit values are normally found but which are not quoted in wholesale markets. Support for the links was found, however, in the fact that the relative for imports came out within 1% of the relative of the other countries for the same year, except for France and Italy; for exports the difference was 8%.

(f) *Belgium–Luxemburg.* A poor pre-war series can be derived by dividing relatives of value by a volume index constructed by S. Capelle (" Le volume du commerce extérieur de la Belgique," *Bulletin des Recherches Economiques*, 1938–39, pp. 15–56) for selected years, and interpolating the results.

The inter-war series is that of F. Cracco of the Institut de Recherches Economiques et Sociales at Louvain, prepared for the National Bank of Belgium, which kindly has given permission for its publication. It is linked to 1913 by an independent calculation for 1928 against 1913 using the Paasche formula.

The post-war series is that of the Institut de Recherches Economiques et Sociales prepared by M. Woitrin and generously furnished by him. It is considered superior to that of the Institut National de Statistique published by the United Nations and in the O.E.E.C. publications, based upon an independent check for the year 1952 compared with 1938.

(g) *Sweden.* An official index of unit values for exports and imports is available beginning in 1895, and can be extended to 1893 by the use of official estimates of volume (Statistike Meddelanden, Series A, Band III: 1, *Statistisk översikt av det svenska naringslivets intvickling aven 1870–1913*, p. 47). A direct comparison of 1913 on 1900, however, suggests some cumulative error in these series, which may overstate the rise in export prices by as much as 12%, and understate the import movement.

Official series for the inter-war and post-war years are available in the League of Nations and United Nations publications cited, except that the two series do not overlap. For a link, it is necessary to get a 1938 figure on the inter-war basis from Meddelanden från Konjunkturinstitutet, Series A: 10; *Konjunkturläget våren 1942*, pp. 54, 57.

(h) *Switzerland.* There are no pre-war data. The official inter-war series stopped in 1935 and was extended to 1937 by the League of Nations staff. A rough calculation along the same lines has been made for 1938, to which the post-war index is linked. The post-war index is badly weighted, using the average quantities traded from 1929 to 1938, despite the growth in watch exports.

2. *Index of Shipping Freights*

The index is primarily a tramp-freight index. This is fairly representative of the course of ocean freight rates in the early part of the period, but becomes progressively less so. In the absence of adequate material on liner or tanker rates, however, it is the best that can be done.

The period is divided into four parts: from 1870 to 1884, Hobson's index for outward cargoes (C. K. Hobson, *The Export of Capital* (London: Constable, 1914), pp. 179–82) and twice Cairncross' inward series (A. K. Cairncross, *Home*

and Foreign Investment, 1870–1915 (Cambridge University Press, 1953), p. 176) have been used. The Cairncross inward index appears to be more widely based than that of Hobson; doubling the weight of the inward series takes into account that earnings on inbound shipments exceeded those on outbound voyages when much coal was carried at freights so low as to suggest ballast.

For the period 1884–1903, the Board of Trade's index of freights (*Parliamentary Papers*, Cd. 2337, 1904, quoted by L. Isserlis, "Tramp Shipping, Cargoes and Freights," *Journal of the Royal Statistical Society*, 1938, pp. 55–7) has been used, again doubling the weight of the inward index to correct under-representation. This portion of the index includes liner as well as tramp rates.

From 1903 to 1938 the series is that of *The Economist*, taken from the issue of February 26, 1938, p. 484 (for a description of the series see "Trade Supplement," July 21, 1923, p. 3).

From 1938 to 1952, the index has been derived from the Chamber of Shipping of the United Kingdom (*Annual Report, 1952–53*, p. 154). This series was revised in 1953. The 1953 figure used here is the general freight index for the United Kingdom published in the *United Nations Monthly Bulletin of Statistics*.

3. *Index of Return on Foreign Investment*

Most calculations of return on foreign investment are based on "nominal" values, which overstate the amounts actually invested in the early part of the period, when loans were frequently issued at substantial discounts, and understate it in the later part by making no allowance for reinvested profits in equities. Returns on equity investments are likely to be profits remitted, rather than earned, which understates the rate in prosperity and overstates it in depression, dampening down the cyclical fluctuation. Because of these difficulties, the index must be viewed with considerable scepticism.

From 1870 to 1913 broad trends in the return on foreign capital in Britain and France have been drawn freehand from the evidence furnished by A. H. Imlah ("British Balance of Payments and Export of Capital, 1816–1913," *Economic History Review*, 1952, pp. 208–39); R. A. Lehfeldt ("The Rate of Interest on British and Foreign Investments," *Journal of the Royal Statistical Society*, March 1913); Sir George Paish ("Great Britain's Capital Investments in Other Lands," *Journal of the Royal Statistical Society*, September 1909, pp. 465–80); Cairncross (*op. cit.*, pp. 229–30); and White (*op. cit.*, pp. 105–12).

For the inter-war and post-war years there are the studies of Lord Kindersley and the Bank of England, respectively; contained in annual articles on "British Overseas Investment" by the former in the ECONOMIC JOURNAL from 1929 to 1939 and in *United Kingdom Overseas Investment* by the latter (1938–48; 1948 and 1949; 1949 and 1950; 1950 and 1951). Unfortunately, the two series are not consistent for the one overlapping year. The Bank of England series must be taken as superior to that of Lord Kindersley, since they were based upon an enumeration rather than a sample: in particular, the Kindersley figures were found to have been overstated as a result of domination of the sample by some of the more profitable concerns for which the data were readily available. On this account, the Kindersley figures have been reduced to conform with the Bank of England data.

For 1926 and 1927, the rough Kindersley estimates are not comparable to the more broadly based ones starting in 1929. The figures for the 1920s have

therefore been roughed in freehand. The 1952 and 1953 figures, filled in on separate occasions, prior to the publication of the Bank of England *Annual Report* are also guesses based on indications of investment returns in many countries furnished in the *United Nations Monthly Bulletin of Statistics*. The 1952 figure should be revised from 83 to 85, but the preliminary figure was used in 1952 calculations.

4. *Exchange Rates*

Conversion to dollar basis of all series was made on the exchange rates published by the League of Nations (*Balance of Payments, 1913–27*, and subsequent annual volumes, and the United Nations (*Direction of International Trade*, July 1, 1953) supplemented by the *Federal Reserve Bulletin*. The official rate of 40·2 U.S. cents to the Reichsmark has been used for 1934–38. It is believed that this does less violence to the data than any other imputed rates, such as 30 cents; while the internal value of the mark was nearer 25 than 40 cents, its value in external trade was kept near the official value, at least on imports. Conversion at a single rate of exchange is inappropriate for a multiple-exchange-rate system, and each transaction should be converted at the rate appropriate to it. It is likely that the average rate for exports was close to 30 cents and that for imports close to 40. Using a single rate of exchange distorts the terms of trade, but lacking knowledge of the terms of trade, it is impossible to calculate the appropriate exchange rates. The rate of 40 cents was used anyhow.

5. *Balance-of-payments Estimates*

The indexes were combined on the basis of volume weights derived from converting balance-of-payments estimates to 1913 prices.

For the pre-war period, the balance-of-payments data for Great Britain, France, Germany and Sweden have been drawn from estimates of Imlah (*op. cit.*), White (*op. cit.*), H. G. Moulton and C. E. McGuire (*Germany's Capacity to Pay*

Industrial European Freights and Returns on Foreign Investment

(In millions of dollars, and as a percentage of current account) [1]

	1913.				1928.				1938.				1952.			
	Credit.		Debit.		Credit.		Debit.		Credit.		Debit.		Credit.		Debit.	
	$ mn.	%.	$ mn.	%.	$ mn.	%.	$ mn.	%.	$ mn.	%.	$ mn.	%.	$ mn.	%.	$ mn.	%.
United Kingdom	1500	37	—	0	2100	34	—	0	1470	36	—	0	2410	23	520	5
Germany . .	420	15	—	0	230	7	210	6	60	5	150	12	210	5	—	0
France . .	460	25	50	3	350	17	60	3	410	37	30	3	300	7	140	3
Italy . .	30	5	—	0	50	6	60	5	50	9	30	5	250	15	—	0
Netherlands .	—	—	—	—	240	23	80	7	360	38	60	7	410	16	70	3
Belgium . .	80	10	—	0	80	9	50	5	60	8	25	3	100	4	80	3
Sweden . .	20	10	10	6	70	14	—	0	90	16	—	0	200	11	—	0
Switzerland .	80	22	20	5	75	15	25	5	80	15	30	5	100	8	60	5

[1] Current account as approximated by the sum of merchandise trade, freights and returns on foreign investments.

(New York: McGraw-Hill, 1923), pp. 27, 268), and E. Lindahl, E. Dahlgren and K. Koch (*The National Income of Sweden, 1861–1930*, Part II (London: P. S. King, 1937), p. 584).

For the inter-war and post-war years use has been made of the balance-of-payments studies of the League of Nations and International Monetary Fund, adjusted, where possible, on a comparable basis.

The remaining gaps, mainly for Belgium pre-war, for Belgium and Italy in the 1930s and for Switzerland, have been filled with scattered information from a variety of sources and from rough approximations. Amounts smaller than 3% of the total have been ignored.

An impression of the weights may be gained from the table on page 34 of balance-of-payments data for selected years. This also gives an indication of the extent to which the services have been covered on a net basis.

6. *Adjustment of Merchandise Terms of Trade to Eliminate Intra-Industrial European Trade*

An ingenious formula for eliminating the effect of trade within a group of countries in attempting to ascertain their terms of trade with the outside world is presented in " A Note on Index Numbers of Terms of Trade," United Nations, *Economic Bulletin for Europe*, Second Quarter, 1953, pp. 21–6. This uses knowledge of the relative shares of Industrial Europe and the rest of the world in the trade of Industrial Europe, the assumption that from year to year export unit values within Industrial Europe do develop differently from those with the rest of the world by no more than 10%, and the truism that the terms of trade of Industrial Europe in Trade with Industrial Europe are 100, to calculate the terms of trade of Industrial Europe against the outside world within a narrow range.

This method, however, is unsatisfactory over an extended period of time, because the range becomes increasingly wider from year to year. The assumption of a 10% rate for longer periods than a year is perhaps appropriate over the business cycle as a whole; in periods of depression, such as that from 1929 to 1933, however, it is inappropriate on anything more than an annual basis.

The present method of adjustment relies upon direct estimation of the terms of trade of Industrial Europe with outside countries over certain long spans of years, beginning, however, only in 1900. These fix the terms of trade in 1913, 1928, 1938 and 1952. Intervening figures are estimated by straight-line interpolation, a method which is unsatisfactory because of the likelihood of systematic changes between the calculated points. No better method has been found, however.

There is no basis for adjusting the terms of trade of Industrial Europe on current account to eliminate the effect of trade within Europe, since there is no information on the geographic breakdown of payments on service account.

CYCLICAL FLUCTUATIONS AND THE GROWTH OF DISCRIMINATORY ALIGNMENTS IN INTERNATIONAL TRADE

I. Introductory

1. Suppose that all currencies were convertible at the intergovernmental level and that no special bilateral or inter-regional payments systems existed. Suppose that such international financial institutions as the I.M.F. were either non-existent or of negligible importance. Suppose again that governments were free to operate quantitative restrictions on imports, or to manipulate tariffs, in a discriminatory or non-discriminatory fashion. Suppose, then, that there exists considerable cyclical instability in world trade, instability derived in the main from internal fluctuations in one dominant country. Leaving out for the moment what can be meant by " dominant," what pattern of intergovernmental trading alignments, discriminatory or non-discriminatory, bilateral or inter-regional, would show itself? Can one discover any principles governing such a pattern, or determining its formation. This paper seeks to produce some very tentative answers to these questions. What is needed, in order to answer them, is an analysis of the impact of instability upon countries, the essential characteristics of whose balance of external payments differs very widely, and who differ one from another in various other relevant respects. From such an analysis one may be able to understand better the kind of trading world in which we live and to make better judgments regarding the growth and durability of this or that bilateral alignment, regional grouping or international code of trading rules.

2. Such an analysis already partly exists in the familiar historical descriptions of the growth of discriminatory blocs. Such description starts with the breakdown of the gold standard. It goes on to observe the rise of the United States, the decline of the United Kingdom and the behaviour of the United States in its role as a dominant creditor nation. The impact of an unusually severe depression is described along with political change, the breakdown of intergovernmental disciplines in international trade and the growing importance of traditional trading relationships established by geographical alignment, colonisation and financial penetration. Finally, one comes to the Second World War and the post-war dollar problem, and thereafter one usually begins to say what ought to be done. One familiar prescriptive argument, related to circumstances of a certain type, is the scarce-currency doctrine, and I must digress upon this in order to describe more fully, and less baldly than in paragraph 1, the background to which the ensuing analysis is meant to be applicable.

3. The war-time plans for post-war international trade, in their most idealist form, sought to create, via the route of international co-operation and wisdom, a trading world which would approximately conform to the basic

assumptions of established economic theory and doctrine. In this world deflations would be fenced off at source by the use of appropriate financial mechanisms and an array of international commodity stabilisation schemes, while imperfections and inequalities would be mitigated by international lending institutions, by the uprooting of international cartels and by a stern code of behaviour regarding the foreign exchanges, quantitative restrictions, subsidies and tariffs. But it was found that general enthusiasm to join such a system was in many cases subject to various qualifications and reservations —which often expressed themselves as important escape clauses in international articles of agreement and sometimes resulted in no agreement being possible. Countries did desire to reap the gains of non-discriminatory multilateral trade at the same time as acquiring internationally-assured protection from foreign slumps, but such aims conflicted with others—their desire not to be forced into financing another country's extravagance, their desire not to upset established home industry, their desire to trade on the best possible terms, their desire to develop and diversify their economies according to their own ideas and priorities, their desire to retain preferential treatment in certain markets, their desire to support politically congenial regimes in other countries and so on. In going so far, and no further, towards the full ideals of the plan, countries were also influenced by a desire to adopt a set of Queensberry rules which would make life in the far-from-ideal world less complicated. Some kind of " Geneva Convention " was required to govern the use of new techniques of international economic warfare discovered in the previous two decades. Thus, when the United States refused to accept the full-liquidity device for preventing the international transmission of depressions, she found herself unable to gain acceptance of a general commitment to non-discrimination, and was driven to accept, in its place, the scarce-currency clause of the I.M.F., and its associated permissive discrimination via currency inconvertibility and quantitative restriction. The dominant country thus undertook, in certain circumstances, not to retaliate when other countries discriminated against her.

4. Discrimination may be defined as any governmental arrangement, temporary or permanent, which is designed to have the effect in certain circumstances of increasing at least one country's share of the market in certain products at the expense of a country or countries outside the arrangement. Some discriminatory arrangements may be permanent in intention (*e.g.*, Imperial Preference, the European Coal and Steel Community, possibly the Soviet bloc), some may be temporary and highly variable in intensity (*e.g.*, the E.P.U., various bilateralisms, etc.). Discrimination of the latter kind is usually a matter of administrative decree and only occasionally a matter of legislative action. Decisions to discriminate or to impose temporary non-discriminatory restrictions by decree usually arise in response to the situation of a payments crisis, and they are taken by Ministers advised by officials. Such governmental action is economic action undertaken in what is usually a highly oligopolistic " market " by people who are not entrepreneurs in the usual sense but who are attempting to maximise, in

some platitudinous sense, their country's economic welfare over some period or other. But they may not always be conscious of precisely what they are trying to maximise, nor will they always try to maximise the same thing—either in every country or in successive cases in one country. Different societies and different politicians may have widely differing scales of values regarding economic welfare. A more rapid rate of material advance may in some cases by sacrificed to greater security (strategic or economic) or to greater financial stability, for example.

5. If intergovernmental oligopoly is to be the background of our analysis, it may be as well to remind ourselves of the essential features of such a field of operations—extreme uncertainty, unequal and fluctuating bargaining strengths, the great importance of goodwill, conflicts between long- and short-run interests, internal pressures and dissensions, and crooked and indeterminate demand and supply curves in many cases. One might perhaps add that the economic expectations, in the international field, of Ministers and officials, expectations that are of considerable causal significance, are probably scarcely less volatile than those of business-men and that the psychological strains to which Ministers and officials are exposed are probably greater than those felt by Boards of Directors. Such strains are not made less by the sometimes apparent, and often real, conflict between doctrine and practice.[1] However, there is no doubt that governments have acquired, during the past two decades, very great oligopolist skills. An immense amount has been learnt about the advantages and disadvantages of particular courses of action in modern circumstances.

6. Thus it need no longer, I think, be *assumed*, in any discussion of the problems of instability, that the supposed slump would fall upon a largely *laissez-faire* world that is likely, unless special payments arrangements and stringent rules are provided, to be stampeded, out of ignorance, into a general intergovernmental *sauve qui peut*. This means that although our analysis disregards the currency aspect of discrimination—simply because it is desired to concentrate on certain aspects of the trade side—it does not thereby become entirely unreal. If the present progress towards general convertibility continues, the analysis may become highly realistic.

7. To end this lengthy introduction, let us assume the experienced oligopolist world we have asserted to exist, let us assume general knowledge of the scarce-currency principle, let us forget special payments arrangements and inconvertibilities, and attempt to assess how governments might act in the circumstances of an American slump by examining one important

[1] For instance, I think it would be fair to say that the British case for freer trade and payments, the case that is crucial and decisive for the formulation of *British* policy, is neither the general welfare argument nor the arguments of certain vested interests. On the contrary, the case rests rightly or wrongly upon a hard-headed examination of British interest, that of a maritime trading nation with a given dependence on foreign trade and a given type of export trade, in an essentially oligopolist world—*i.e.*, it is correct United Kingdom strategy in a world game. British attitudes towards Commodity Agreements, or towards closer association with the European Coal and Steel community (with its implicit oligopolist threats), are similar examples. General argument has its place but it is not dominant, especially when concrete action is required.

aspect of the oligopoly process. This aspect is the incentive upon governments to adopt discriminatory practices of some kind, or, one might even say, the incentive to maintain at least the formal apparatus of discrimination against the possibility of an American slump. My analysis is mainly confined to visible trade: the invisible side is regrettably left largely invisible, and only cursory attention is paid to capital account.

II

1. In order to examine an incentive that is held to be operative in a certain oligopoly situation, the United States recession, one has, I think, to do two things at once. One has, first, to examine the major differences between the impact of the recession upon the balance of trade and national incomes of different types of country. Secondly, one has to examine various other considerations of an economic or politico-economic character which are of the greatest importance where the incentive to discriminate is concerned. Thus the timing, magnitude and directional distribution of derived cyclical changes in a country's balance of trade, cyclical changes attributable (it is assumed) to fluctuations originating in a dominant [1] country, are determined by the direction and commodity composition of that country's trade. But the determination of whether or not a country is able and willing to engage in dollar-substitute trade induced by discriminatory controls will be affected not only by the direction and composition of its trade but also by the internal structure of its economy, by its institutional framework and by what its leaders may consider to be its longer-run interests.

2. For purposes of examination we may therefore enumerate a collection of boxes into which countries other than the United States might be sorted. In practice, any one country is not likely to belong exclusively to any one box in every period of instability, or indeed in any one period; but in order to derive some "principles of discrimination" from this tangle one must, for the present, suppose that each individual country is so preponderantly influenced by a particular aspect of its situation, when free to take action, that it chooses to jump into one appropriate box rather than try to keep footholds in several.

3. The "boxes" to be considered are:

(*a*) crisis primary-producing countries with all-round severe deficits;

(*b*) countries to be described as satellites of the United States;

(*c*) crisis primary-producing countries with marked variations in the severity of their deficits as between important customers;

[1] What is meant by dominant country? Such a country is:

(*a*) Of sufficient size, as an international trader, and of sufficient volatility as an importer, for fluctuations in her imports to cause, by themselves or jointly with induced fluctuations in countries importing similar commodities, large changes in the incomes of people producing them; *i.e.*, large enough to provoke crisis and government action.

(*b*) Also a country of whose competitive power, in the widest sense, many other countries are *afraid* and against whom, therefore, such countries welcome any reputable excuse for organised discrimination.

(*d*) crisis primary-producing countries with substantial home industry;

(*e*) manufacturing countries trading manufactures with each other;

(*f*) countries that buy and sell commodities that the United States exports;

(*g*) countries that buy and sell commodities which the United States does not export (but does probably import);

(*h*) countries to be described as satellites of some other non-United States country.

How, then, are the occupants of each box likely to react to the stimulus of a recession in a dominant country that is, as a matter of fact, *an importer and exporter of both primary products and manufactures on a scale that ensures for it a major position both as buyer and seller in each category*?

(a) *Crisis Primary-producing Countries with All-round Severe Foreign Deficits*

In so far as much of the foreign trade of such countries consists of the exchange of primary produce for manufactures, shipping services and currency used for debt payments and dividends, they will normally experience a sharp worsening of their terms of trade concurrent with a falling volume of sales to, in the first instance, the United States. Abnormally this may not occur; certain primary products may not fall in price relative to that of manufactured imports, due, for example, to national or international schemes to maintain their world prices; the volume of trade in certain basic foods may be maintained or increase; certain manufactures or semi-manufactures (*e.g.*, steel, jute goods) may show great price flexibility; the declining cost of invisible items may offset falling export prices. But one may accept the proposition as descriptive of a common phenomenon in the international trade cycle.

Unless foreign-exchange reserves are large, the effect of falling home incomes upon import volume both heavy and quick and the degree of deliberate anti-deflationary government action small, a severe foreign deficit will arise and an exchange crisis ensue within nine months or so of the onset of the recession. It is a moot point whether the deficit with the United States is likely either to be proportionately larger or quantitatively more important than the deficit with other countries in whose favour the terms of trade have moved. The fall in both volume and price of the primary imports of the United States, and falls in the price of American primary exports, both generated by internal American changes, will probably generate downward inventory cycles in such materials in hitherto "non-slump" importer countries.[1] This short-circuit effect, whereby an "auto-

[1] One says "will probably generate." Abnormally this may not be so. It may depend upon the rate of industrial advance in non-slump countries and the amount of inventory carried at the time. It may also depend upon the after-effects of import cuts imposed governmentally in some previous crisis, upon expectation of renewed cuts or upon expectations of currency revaluation. But one would usually expect such factors to operate only in one or two countries, the general international effect being one of attempted inventory reduction. A "cyclical" movement in United

nomous " inventory slump occurs elsewhere, means that to the country exporting badly-hit primary products, " the American slump " is in fact worldwide, and the fall in its exports to America proportionately hardly more severe than with other countries that buy its primary produce. In certain cases the short-circuit effect may be so combined with directional complications that a country's derived dollar deficit may be a quite minor affair relative to its deficits elsewhere. In the extreme case, a country might have no trade at all with the United States in the products concerned, but yet incur a balance-of-payments crisis directly derived from an American recession—a crisis caused by worsening terms of trade and aggravated by inventory reduction on the part of the country's customers. The government of a country in this position must primarily be concerned to stop the drain on its external reserves and save the exchange rate. It will be anxious to do nothing which might in the short run maintain any out-flow of reserves for the sake of uncertain gains later on. Neither will it be anxious, in any case, to worsen its already very adverse terms of trade by purchasing in dearer markets. The incentive to slash imports on an essentiality basis (whose discriminatory effects will be haphazard), blame the instability of manufacturing countries and retreat into as autarkic a life as possible will be very strong. In spite of the general " scarce currency " argument for discriminatory action against the United States, to a particular country in this box such argument will appear hardly applicable, owing to the necessity of curing a deficit which yawns just as large on the non-dollar as on the dollar balance, in certain cases larger. Such a country *might* decide, at this or at a later stage, to discriminate in favour of some particular country or group of them, but it would do so because of certain factors which really place it in another category (or box), for example:

(b) *Satellites of the United States*

Such countries are satellites for a number of reasons—geographical alignment, colonisation, financial and commercial penetration, and so forth—and a very large proportion of their total trade is with the United States (*e.g.*, Central American Countries, Caribbean States, Philippines, parts of northern South America).

Certain consequences arising directly from the satellite status have have already been set out by Sir Donald MacDougall in his article " Notes on Non-discrimination," [1] in which he was, *inter-alia*, concerned to point out certain difficulties that might arise in the organisation of collective discrimination against a slumping United States. His point was, briefly, that " keeping up non-dollar trade " [2] is not so attractive a proposition if you have very little of it in any case: a country whose trade with the United States is

Kingdom inventories, traceable to government action, may be observed running inversely to the American cycle in 1949–52, but one would not expect this to continue in present circumstances now that the biennial procession of crises has been broken, unless, for other reasons, commodity prices proved sufficiently insensitive to an American recession for absolute falls to be avoided.

[1] *Bulletin of the Oxford University Institute of Statistics*, 1947.

[2] My quotation marks.

a very large proportion of its total trade (say, over two-thirds) has relatively little to gain from discrimination against the United States—even supposing its exports to the rest of the world *are* initially unaffected by the American slump. Such a country might, moreover, have a great deal to lose through loss of American goodwill. It is the latter point that I wish to enlarge here, mainly because of its particular importance in hesitant cases. Such countries normally enjoy, we may suppose, favourable imperfections for their exports in the United States market and rely upon the United States government and private industry for a supply of long-term capital and short-term credits. Equally, United States exporters enjoy favourable imperfections in these countries, which they would be especially anxious to retain at a time when markets generally are poor. Thus one can presume that a satellite forced to cut imports from all sources would do so in a way least calculated to damage its relations with the United States—for such damage might restrict the flow of long-term capital even more than would occur automatically and divert it elsewhere, with longer-run damage to the country's economic development, it might prejudice the granting of short-term governmental assistance by the United States, it might encourage the eventual abrogation of existing long-term preferential tariffs accorded by the United States, and, scarce-currency notwithstanding, there is at least some risk of increased (theoretically non-discriminatory) protection of United States domestic industry competing with the satellite's exports. These are all serious *risks* to be weighed against small short-run gains in a temporarily bad situation of unknown but relatively short duration. The result of such considerations, plus assessment of the influence of interested parties upon United States action, could easily be a policy of discrimination in favour of the United States and at least only a nominally non-discriminatory policy—the licensing of imports of manufactured goods carries a multitude of opportunities for concealed discrimination, the more so in countries prone to irregularities of administration. The sanctions that can be applied by other non-dollar countries against such behaviour are probably small compared to the short- and long-run gains of maintaining good relations with the United States. And in any case such sanctions are unlikely, for many reasons, to be applied in concert.

Even a completely " fair " policy of non-discriminatory cuts may, in the satellite case, have some of the effects of an avowedly discriminatory policy. For although such restrictions usually allow the supplying countries to compete among each other for the reduced volume of business permitted,[1] the sharp reduction in the size of the market is itself likely to favour the dominant supplier, whose exporters possess superior local marketing organisation and a strong hold on local tastes—unless the smaller competitors indulge in substantial price-cutting which does not meet with retaliation. For in an expanding market the chances of successfully winning a share away

[1] *I.e.*, by global quota systems. Some countries restrict imports, however, on a percentage-of-base-period basis applied to each supplying country—thus freezing each country's share of the market and more obviously protecting a dominant supplier against encroachment.

from the dominant supplier may be worth the selling costs involved, while in a sharply restricted market even a small remaining foothold may not be worth its maintenance and all effort be concentrated on the retention of much more important positions elsewhere. Discrimination in favour of smaller competitors may be necessary if their position is to be held at such a time. It would, I think, be thus generally agreed that the satellite system would either intensify itself during a recession or else ward off attempts to weaken it. Only if a given satellite found itself so affected by other quite different considerations as to choose another box, or if the slump was so severe as to enhance the gains of detachment from the United States, would the system suffer defections.

(c) *Crisis Primary-producing Countries with Marked Variations in the Severity of their Deficits as between Important Customers*

Fluctuations in the price and volume of trade in primary products vary considerably commodity by commodity, both in amplitude and in timing. A country exporting several primary products in such a way that it exports proportionately more of Commodity A to Country A than to Country B is likely to find that its trade with one important customer, or group of them, remains relatively stable compared to its trade with others—either in the initial stages of a slump or right the way through. A country exporting coffee, and say cotton (*e.g.*, Brazil), might find that its trade with the United States behaved in a less volatile fashion than its other trade. Australia and New Zealand, whose trade in foodstuffs with the United Kingdom is likely to be more stable than their wool trade with the world in general, are likely to find on this account that a derived bilateral deficit with the United Kingdom is relatively not so severe as that with the United States or with other wool-importing countries from whom manufactures are purchased.

Although, under conditions of currency convertibility, there is no necessary direct monetary incentive to discriminate in favour of a country with whom one's trade happens to be relatively stable, or not to discriminate against it, there may nevertheless be other strong reasons for doing so. To begin with, such a policy looks fair and reasonable—one cuts imports only from countries that have " cut " their imports from you, rather than cutting them all-round and forcing a surplus out of one's " good " customer in order to finance a (reduced) deficit with one's bad customers. Such a policy looks even more equitable if the good customer's virtue can in part be attributed to that customer's conscious policy and not entirely to the basic cyclical behaviour of the commodities concerned. But besides being fair, and least provocative of complaint, such a policy may be in the long-run interests of the country concerned. For whereas in the short-run the danger of the " good " customer deliberately retaliating against non-discrimination may be small, retention of goodwill may be important if in the longer-run the customer can develop its trade with other, competing primary-producers who are more willing to discriminate in its favour in times of cyclical difficulty. This point would be accentuated if the primary-producer looked

forward to a price-stable and expanding market in, say, meat exports to the United Kingdom while the outlook for price-volatile wool was poor and uncertain.

Such long-term considerations, added to those considerations of "goodwill" more applicable to satellite countries (*q.v.*), may be expected to reinforce short-run convenience and lead the country concerned to discriminate in favour of its pronouncedly more stable markets when forced, by external circumstances, to cut imports.[1] But such a policy might run into difficulties if the country really belonged to:

(d) *Crisis Primary-producing Countries with Substantial Home Industry*

Exporters of primary products who supplement home production of manufactures by imports of such goods may be expected to bring their trade into balance, in response to a fall in export receipts, by protecting their own industry—*i.e.*, by doing without those supplements to home output which can be afforded only in more prosperous times. This action is partly justifiable on socio-economic grounds—governments cannot permit avoidable secondary deflations to occur in the very industries that have been set up to reduce the country's dependence on unstable export earnings. But short-run protection can be justified on terms-of-trade grounds.[2] This protectionist urge also exists in countries that are predominantly exporters of manufactures, but, except in response to dumping, fears of retaliation will be a strong deterrent; short-run retaliation against primary-producers, however, may be very difficult to operate, and such countries are reasonably safe, provided they do not immediately encourage, by their protectionist policy, the development of synthetic substitutes for their exports.

It is clear that protection of this sort may radically affect the ability of a country to impose discriminatory import cuts of the "scarce-currency" type, since the structure of its home industry and its requirements of raw materials will dictate an import programme which it may be difficult to reconcile with a policy of discriminating against one part of the world.

[1] Yet Australia and New Zealand imposed restrictions in 1952 which were allegedly non-discriminatory between sterling and E.P.U. sources of supply. These restrictions were, however, designed both to stop all drain on those countries' external reserves (sterling balances) and to get them into balance with the non-sterling world. This could evidently be done in the way it was without obviously being unfair to the United Kingdom (*i.e.*, without using a surplus with the United Kingdom to offset a deficit with other E.P.U. countries). This suggests that owing to the delayed recovery of Germany, and the restrictions on dollar goods, the great demand for imported consumer goods (subsequent to the "Korean" commodity boom) had led to a greater flow of United Kingdom exports into Australia and New Zealand than one would "normally" expect in a boom (*i.e.*, if one started from a "normal" situation of no prior discrimination and no early post-war complications). Such a greater flow would result in the Australians' deficit with the United Kingdom being just as severe as their deficit with E.P.U. although their exports to E.P.U. fluctuated more violently. Cyclical variations in the share of manufacturing countries in the primary-producers import trade, attributable to variations in pattern of demand, could occur "normally," but I have not dealt with this point.

[2] *I.e.*, that at the slump terms of trade it would pay to use more home resources to manufacture goods usually imported rather than to use such resources to export. Or that if these terms of trade continued a devaluation would be necessary which would probably not worsen the actual terms of trade further but would lead to a reduction in imports of manufactures.

(e) *Manufacturing Countries Trading Manufactures with Each Other*

These countries have temporary derived surpluses with primary producers and quantitatively small dollar deficits (*i.e.*, small in relation to their external reserves). Such countries are not under violent pressure to take action until time-lags of appreciable length have elapsed and the drying-up of their derived surpluses compels them sooner of later to plug their dollar deficits and to relieve their internal employment situations. They may welcome the improvement in their terms of trade, and will tend to optimism regarding the duration of the United States recession and of their own inventory movements. Nevertheless, if the recession continues, they may make discriminatory arrangements between each other in substitution (if that is possible) for their dollar trade in manufactures, and are unlikely actually to cut their mutual trade. Here the general scarce-currency argument for discrimination comes into its own—there are no complications, the dollar deficit is the only deficit, and the futility of mutual import-cutting obvious. But, of course, the trade of such countries (typically West European countries) with each other is by no means the only field in which they can operate discrimination and, when faced with shrinking markets in primary-producing countries, they may find themselves in the more general category:

(f) *Countries that Buy and Sell American Export Goods*

Many countries compete with the United States in the export market for certain products while at the same time importing other products, either from the United States or from competing sources. These countries that supply almost perfect short-run substitutes for American goods can engage in direct mutual discrimination against the United States. Such discrimination obtains for each partner a larger share in the (reduced) world market for dollar export goods; *e.g.*, by discriminating against the United States, Brazil and Germany can respectively increase their shares of the market in raw cotton and engineering goods at the " expense " of the Americans—their most feared competitors. America does not necessarily sell any less of these goods than she might if no discrimination took place, but her share of the market is smaller, since the total trade in these commodities is probably larger with discrimination than with non-discrimination.

The point being made here is that the gains from discrimination against a slumping United States are of two kinds. One may be called the " income effect " and the other the " substitution effect." [1] Thus any one country exporting American-type primary products or manufactures is guaranteed the benefits of discrimination on two counts:

(i) Because of the contribution such discrimination makes to the general maintenance of non-American business activity and trade.

(ii) Because the foregoing of American goods by other non-dollar countries creates additional demand for *particular* non-dollar goods—*i.e.*, substitutes for American ones. Such additional demand may be offset against any general decline in non-dollar demand for American-

[1] See R. Mikesell, " Discrimination and International Trade Policy " (*R.E. & S.*, 1950).

type goods that may occur as a result of inventory reduction, etc., in the non-dollar world.

The country that does not export American-type goods benefits from the "income effect" but not from the "substitution effect." The importance of the distinction, for present purposes, lies in the fact that if general co-operative discrimination is not guaranteed, then the incentive upon an individual country to adopt discrimination if it has to rely upon the income effect may, in many cases, be very small, whereas for a country able to rely on the substitution effect, co-operation between itself and only one or two other countries can yield very substantial and immediate results.

In the case, above, of countries exchanging manufactures, the process seemed free of complications. This may be attributed to the fact that in such countries, over a wide but heterogeneous field of so-called "inessential" manufactures, deprivation (whole or partial) of American supplies is unlikely to lead to serious hardship or to inequality of the "burden" of discrimination as between the countries concerned. Such hardship and inequalities would occur, first, if American manufactures were marginally much more essential to the countries concerned, or to one country, than were internationally traded non-dollar manufactures, and secondly, if discrimination were to be accompanied by such significant local premia on the prices of the non-dollar manufactures concerned as to have serious effects upon certain industrial costs or upon costs-of-living—either equally in each country or disproportionately severe in one country. The first difficulty mentioned is perhaps a real one for an individual country, but the second is not very probable—significant premia may occur, especially if American manufacturers choose to dump in export markets, but their effects will be small. In the discriminatory exchange of primary products for manufactures, however, the situation can be very different. Premium prices for the non-dollar primary products which are normally obtainable in the United States can affect industrial costs in manufacturing countries at a time when many *export* markets are highly price-sensitive, when American manufacturers in particular are buying in the cheapest market and when small changes in costs may seriously affect competitive power and will certainly be thought to do so at the time. Such difficulties are, of course, increased if discrimination is to be applied to the whole dollar area and not only to the United States. Likewise, to the non-dollar primary producers of dollar commodities, whose imports of manufactures are essential, the paying of substantial premia over American prices (perhaps being reduced by aggressive American selling policies) is a much more serious matter, and the proportion of total imports concerned likely to be much larger, than in the case of manufacturing countries trading with each other. This complication is intensified if, as is perhaps, however, unlikely,[1] the primary producer is in any case experiencing a severe worsening of his terms of trade. To these difficulties may be added a further complication. A decision to discriminate as regards primary products usually involves a considerable forward commitment, *i.e.*, it is not

[1] See footnote to p. 48.

flexible or easily reversible. This is particularly the case if controls are operated over private traders. Discrimination in, say, cotton probably requires allocation of licences in advance of a crop year. To act in the middle of a crop year may be useless or impossible, unless existing contracts are broken—a very distasteful action. Allocation of licences in advance means estimating likely requirements, size of harvest in various parts of the world, possible levels of premium prices, etc., all of which is very hazardous—the more so if monopoly selling agencies exist in the primary producing country concerned. Merely forbidding the import of certain dollar manufactures is a much more simple matter. The effect of this complication, in combination with optimistic uncertainty, is to make such commitments unattractive—particularly if the administrative measures required are politically obnoxious and involve the closing of commodity exchanges whose existence is thought to be of long-run benefit to the country.

The consequences of all these complications seem to be two-fold. First, although they may not cause less discrimination to take place than would occur under some theoretically perfect system of equal discrimination all-round, they will strongly influence the channels into which discriminatory trading will flow (*i.e.*, who discriminates with whom). Secondly, since the discrimination takes place in a particular market in which the governments concerned may well be unlikely to allow the adjustment of supply and demand in the non-dollar sector to be left to ordinary market forces (as might be allowed in the discriminatory exchange of manufactures), we must expect extensive bilateral bargaining to take place. Without such bargaining (on prices and quantities), countries would be unwilling to undertake forward commitments unilaterally which carry excessive risks on the price side without any necessary guarantee of reciprocity. Both sides are in a position to exploit the dollar scarcity of the other, and must resort to bargaining in order to get a solution. If, therefore, a country is at one and the same time relatively more anxious to buy a particular industrial raw material (*e.g.*, cotton) in the cheapest market, owing to the relatively greater importance of the industry concerned in the country's export trade, and is also institutionally hostile [1] to bilateralism, one would not expect it to discriminate willingly in the material concerned unless it were especially anxious to improve its long-run relationship with the potential bilateral partner.

Thus, although mutual discriminatory exchange of this type is obvious and likely, the complications we have considered point to:

(*a*) Discrimination against United States manufactures occurring, without complication, between non-dollar manufacturing countries as a resultant of unilateral restrictions, of varying intensity, being placed on such American goods in accordance with accepted scarce-currency doctrine.

(*b*) Certain non-dollar manufacturing countries being more in-

[1] *I.e.*, because of, for example, the existence of organised free commodity exchanges in the country—which are not administratively a suitable discriminatory instrument. The degree of cartelisation in domestic industry is also important.

clined to discriminate against American primary products than American manufactures, owing to their relative indifference to premium prices on such products, their relative aptitude for bilateralism and, perhaps most important of all, their relatively greater desire to develop longer-run favourable imperfections in the primary-producing countries concerned.[1]

(*c*) Bilateralism between the non-dollar manufacturers and primary producers of dollar-substitutes, quite possibly only emerging at a late stage when bargaining power on either side has been seriously weakened by loss of reserves and markets.

(g) *Countries that Sell Commodities that Are not Direct or Near Substitutes for United States Exports*

I.e., typically, countries selling primary products of which the United States is an importer and who are damaged both by the decline in American demand and by associated declines elsewhere. Being unable to obtain a

[1] The whole analysis here is, of course, affected by what might be called "unco-ordinated" stabilisation of dollar primary-commodity prices—notably the international effects of American farm-price legislation. In circumstances where there is world excess supply of, for example, American-type cotton, the world price of cotton can be held at or near the American internal support-price if all cotton-exporting countries operate government stock-holding agencies in the requisite manner and no one country attempts to dispose of its crop by quoting such lower prices as would induce inter-governmental price warfare. In cases where the American internal support-price is so high as to have adverse long-run effects on all cotton exporters—by encouraging synthetics and so forth—the price leadership may pass to another country (*e.g.*, as it may perhaps to Canada in wheat). But provided each exporter country is concerned only to retain what it considers to be its fair share of the market, the system of stockpiling plus price leadership could hold together for some time. How does this affect discrimination?

Genuine international commodity agreements are essentially anti-discriminatory—attempts to write a dual- or multi-price system into an agreement being unlikely to succeed—and would, if sufficiently widespread, make discrimination scarcely necessary. "Unco-ordinated" stabilisation schemes which look more respectable than, but are hardly distinguishable from, exporters' cartels, are a different matter. It is possible for importing countries to bargain their higher-priced manufactures for larger *quantities* of American-priced "Brazilian" cotton than their ordinary trade connections, etc., would otherwise have bought. America cannot retaliate in like manner (because she cannot undertake the reciprocal imports), but she can retaliate either by price-reduction (which has serious external and internal disadvantages for her) or by accepting payment for support-priced "cotton" in the local currency of the importer. This latter method in fact means, at least in the short-run, giving away the cotton without actually changing its world price, and passes the responsibility of starting a price-war back to her competitors. The net result of such a process is very indeterminate, and depends upon such factors as the distribution of the surplus stocks as between producing countries, the timing of American decisions to give away cotton, the policy of individual non-dollar producing countries concerning their long-run aims and the eagerness shown by certain consumer countries to collar certain markets (Egyptian, for example) by bilateral trade agreements of a barter character. The process could produce the most drastic shifts in trade patterns, or it could produce no change at all.

Perhaps the most likely outcome is for the Americans to avoid discrimination in cotton by the gift method, but to discover that by doing so they increase their share in those countries which, for institutional reasons, are not prone to bilateralism (but which probably discriminate hard against American manufactures) and lose their share elsewhere. The net result would be less discrimination against America but a more drastic change in intra-non-dollar trade direction—*particularly* if the countries unsuited to bilateralism could look to other sources of favourable treatment or, in the longer-run, to growing markets in the dollar area itself.

Thus the removal of the "premium price" factor leads one to fall back on that of "institutional suitability for bilateral barter" as the main factor, plus the presence of other discriminatory practices.

larger share in the reduced world market for such goods, save at each other's expense, the most they can do is to rely upon the " income effect " and help limit the contraction in world trade by themselves discriminating against the United States—even though their customers are unable directly to discriminate in their favour in return.[1] But this group exists only as a logical corollary to the previous one. Countries in it in fact either belong to box A, B or D, and are unlikely to discriminate against the United States, or else find themselves in box C and may discriminate accordingly.

(h) *Countries that Can be Described as Satellites of Some Non-United States Country*

These countries, for the usual satellite reasons, may choose to discriminate in favour of their dominant partner and against the rest of the world.

4. The principles outlined in the above paragraphs may be summarised as follows:

(*a*) Discrimination against the United States is unlikely to be undertaken, owing to serious practical short- or long-run difficulties, if a country is either a satellite of the United States, an exporter of primary products whose difficulties on its non-dollar balance are habitually as severe as, or more severe than, those on its dollar balance or whose protectionist requirements are both non-discriminatory in effect and uninhibited by possible retaliation from non-dollar countries.

(*b*) Mutual discrimination against United States primary products or manufactures is *prima facie* probable between countries not prevented by considerations in (*a*) above and between whom trade in dollar-substitutes is possible, such that the mutual discriminatory action relieves the immediate drain on external reserves without either causing acute shortages of essential goods or giving rise to serious imbalances between the countries concerned. In so far as unilateral discriminatory actions produce important price premia and do not automatically stimulate reciprocal treatment, bilateralist arrangements will arise between countries best suited to them.

(*c*) Discrimination in favour of a particular non-dollar country, who may not be able, in the short-run, to accord reciprocal treatment[2] (for lack of dollar-substitution), is likely to be undertaken, out of short- and long-run considerations, either by a satellite country or by a primary producer whose trade with the particular country happens to be stable relative to its trade with other countries.

(*d*) Notwithstanding any of the above considerations, the process of the spreading of the recession, and the time-lags involved, will delay the mutual discrimination of type (*b*) above, while action of type (*a*) and (*c*) will occur early on. The fact of discrimination of type (*c*)

[1] *I.e.*, they cannot, *by government action*, maintain their imports of the materials concerned simply by cutting dollar imports. It is possible that, by government action, they might retaliate by cutting imports of the materials even more than occurs automatically and by not retaliating claim that they were discriminating in favour of the producing country. Such retaliation seems extremely unlikely, as it would only make matters even worse for both parties.

[2] Save on capital account, a vital consideration.

being in force when type (*b*) comes up for consideration means that the "suitability" of countries for bilateral arrangements, etc., will be affected by the degree to which they are already benefiting from discrimination of type (*c*).

5. If we did now add some currency inconvertibility to the scene, *i.e.*, absence of central bank full net convertibility into dollars, then further difficulties would arise in the case of countries dependent on multi-lateral dollar earning [1] at the same time as certain other problems are made easier.

III

1. We have attempted, above, to analyse in a suggestive fashion the operation of an incentive to take discriminatory action—an incentive presumed to be present in an oligopolistic intergovernmental market at an especially action-stimulating conjuncture of circumstances. The conjuncture was that of an American recession accompanied by pronounced difficulties in commodity markets. It does not matter whether or not national recessions are solely an indulgence of the United States, nor whether or not they always give rise to difficulties in commodity markets. What does matter is that America is dominant, that commodity markets are unstable and that the conjuncture required to stimulate discrimination of the type here considered—*i.e.*, induced by instability in world trade—*is* that of the American recession plus commodity surpluses. The analysis was conducted in terms of crude economic geography, a rough sketch of the cyclical process and crude oligopolist reasoning. One cannot pretend it has got very far, nor been at all precise. Much further research, for which there is no space here, needs to be done, with particular reference to the currency rather than the trade side of the problem. The currency aspects of the sterling discriminatory system, or of the O.E.E.C. system, are of vital importance. Even on the trade side alone, it is not to be imagined that practical investigation would reveal countries falling neatly into the categories I have used, nor that my list is in any way exhaustive—important discriminatory offers, made at a time of cyclical dollar scarcity, may, for example, be motivated purely by political factors of a non-economic character. However, even without the detailed supporting evidence, it is possible to point at certain provisional conclusions.

2. The first conclusion is that given a recognition of American dominance —long- and short-run fear of American competitive power—and international knowledge of the principles of scarce-currency doctrine, then instability in international trade could produce a considerable amount of discrimination against the United States, even though no very effective payments arrangements are set up to facilitate it.[2] Such discrimination may be accompanied by various other discriminations within the non-dollar world. The result

[1] See again Sir Donald MacDougall, "Notes on Non-discrimination."

[2] The early post-war situation, with its disruption of supplies, disorganisation of trading practices, acute inflationary pressures and intense temporary demand for dollar goods, is a poor guide to the circumstances here considered.

may appear to be very far from the collective and co-operative discrimination against the United States sometimes advocated, and the world have a distinctly "jungly" appearance, but there may be a key to understanding of the jungle which reveals it as something approaching the most that is practicable in the way of defence against the worst consequences of instability. Furthermore, the analysis suggests that regional payments arrangements which are set up—perhaps in different circumstances—that ignore all these complications on the trade side and attempt to force discrimination along "unnatural" financially-induced channels could find themselves beset with severe "structural" difficulties in consequence of periodic imbalances arising between members which cannot feasibly be overcome via more discrimination. Inappropriate payments arrangements will always bear the scars of the last cyclical crisis. If it really is the case that certain standards of behaviour on the part of America and other countries, taken in the context of a given pattern of trade with given cyclical characteristics, will produce a fairly probable network of discriminatory alignments of variable intensity, then the most successful of any special financial arrangements would be those most consistent with that pattern. One must, however, qualify this conclusion by remarking that the growing prevalence of governmental dominance over nominally free commodity markets makes it increasingly difficult to ascribe any special cyclical characteristics to any one major primary commodity.

3. The second conclusion is that the development of long-run trading relationships between pairs or groups of countries, the enlargement or diminution of shares of markets in particular countries, is greatly influenced by the cyclical behaviour of their mutual trade and the consequential behaviour of their governments in the context of American domination. Temporary discrimination intensifies existing imperfections or sets up new ones. In certain cases temporary restrictions, even of a non-discriminatory character, can preserve and intensify existing imperfections. A cyclical crisis in international trade is at one and the same time a challenge to one's defences and an opportunity to strengthen one's grip on certain markets or acquire a decisive lead in new ones. The type of analysis attempted in this paper, if developed, should provide additional material for assessing which markets are appropriate ones for an individual country to cultivate—or which are the markets where one's long-run competitive power (including, here, one's relative immunity from sudden governmental ousting) is greatest.

4. Finally, it must be emphasised that this paper is not meant to be prescriptive. Rather is it meant to draw attention to certain features of that trading world for whose improvement so many prescriptions abound. A generalised prescriptive argument acquires practical meaning when it is related more closely to that specific conjuncture, with all its pressure and alarm, at which it is supposed to become an implemented policy.

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THE RATE OF INTEREST AND GENERAL EQUILIBRIUM ANALYSIS[1]

In spite of the fact that the theory of interest has been exhaustively discussed in the last twenty years, no general agreement seems to have been reached. On the contrary, the area of disagreement seems to have widened in recent times. The dispute between Loanable Funds and Liquidity Preference theorists has flared up again,[2] a number of economists led by Mr. Modigliani have sought to re-establish the older classical propositions,[3] while Mr. Patinkin has drawn attention to the very special character of some of the Keynesian assumptions.[4] Most of the disputants have this in common: they seek to find one particular supply-and-demand relation (excess demand equation) out of all the supply-and-demand relations which go to make up a general equilibrium system, which can be said to " determine " the rate of interest. The dispute turns on which out of a number of such relations to choose.

The purpose of this paper is two-fold. First, we shall show that Mr. Modigliani's classical revival comes up against certain logical objections to which Mr. Patinkin has drawn attention, and must therefore be rejected. The excuse for doing so is partly that Mr. Modigliani's model, in spite of Patinkin's criticisms, seems to enjoy a considerable following, and partly because we shall criticise the model in a slightly different way from that followed by Patinkin. Secondly, we shall draw attention to the divergence which exists between Keynes' definition of liquidity preference (L.P.) and the present custom of identifying the excess-demand equation for money as representing the forces of liquidity preference. We shall choose a different way of stating the L.P. theory which seems more in accord with Keynes' definition. Having done so, we shall show that the dispute between L.P

[1] I have had valuable comments on a first draft by Mr. R. F. Harrod, Mrs. Joan Robinson and Mr. H. G. Johnson. I have also benefited from correspondence with Mr. D. Patinkin, although we have been unable to reach agreement on a number of points. All errors, of course, are my own.

[2] *E.g.*, W. Fellner and H. M. Somers, " Alternative Monetary Approaches to Interest Theory," *Review of Economic Statistics*, XXIII, 1941, pp. 43–8; and the same authors, " Note on ' Stocks ' and ' Flows ' in Monetary Interest Theory," *Review of Economic Statistics*, XXXI, 1949; L. R. Klein, " Stock and Flow analysis in Economics," *Econometrica*, July 1950, pp. 236–41; Karl Brunner on the same topic, *ibid.*, pp. 247–51, and replies by Messrs. Fellner and Somers, *ibid.*, pp. 242–5 and 252. See also H. G. Johnson, " Some Cambridge Controversies in Monetary Theory," *Review of Economic Studies*, XIX (2), pp. 90–105, and D. H. Robertson, " Comments on Mr. Johnson's Note," *ibid.*, pp. 105–11.

[3] F. Modigliani, " Liquidity Preference and the Theory of Interest and Money," *Econometrica*, XII, 1944, pp. 45–88. (This has been reprinted in *Readings in Monetary Theory*, and subsequent page references will refer to this book.)

[4] See Don Patinkin's three articles on classical equilibrium systems in *Econometrica*, April 1948, January 1949 and April 1951. Also by the same author, " A Reconsideration of the Equilibrium Theory of Money " and " Further Considerations of the General Equilibrium Theory of Money " in *Review of Economic Studies*, No. 45 (1949–50) and No. 50 (1952–53) respectively.

and loanable funds (L.F.) turns only on the period which is chosen for consideration.

Before embarking on this task a few words on methodology may not be out of place. In the main we shall conduct our analysis on the basis of static Walrasian Equilibrium systems. These are unsatisfactory in many respects, and in particular are fairly unrealistic as a description of an expanding capitalist economy. But for the most part all recent discussions in our field, not excluding the General Theory, are conducted in this framework. In particular, it must be emphasised that the " Keynesian Revolution " was a revolution because it purported to demonstrate certain propositions concerning comparative statics systems which it had been thought could not be demonstrated. (Probably even those most deeply steeped in classicism would have admitted the possibility of " dynamic " unemployment.) For all these reasons a comparative statics analysis in this paper is the appropriate one.

We begin the paper by a general discussion of what is implied by the statement that one particular supply-and-demand relation " determines " one particular price.

I

From the theory of consumer's behaviour we know that the demand for any commodity or service he consumes or supplies will depend not only on the price of that commodity, but also on the prices of all other commodities he consumes and supplies. It will also depend on his wealth, that is on the assets he holds. If all consumers consume and supply something of every good and service and hold certain amounts of all assets, then the aggregate demand for any good will depend on all prices and on the quantity of all assets. If, then, we define the equilibrium price of a commodity as the price at which the excess demand (demand minus supply) for that commodity is zero, we can " determine " that price only from the demand and supply equations for the commodity if we know the prices of all other commodities and the total quantity of various assets. This is, of course, a well-known Marshallian procedure. If, however, the prices of other goods and services and the quantity of assets held are not known, we need in general at least as many further demand-and-supply relations (excess demand equations) as there are other prices and assets affecting the demand for that particular good. In a general equilibrium analysis therefore all prices are " determined " by all supply-and-demand relations simultaneously, in the sense that we need all of these to find the equilibrium price.

Now it may happen that certain groups of individuals consume only a limited set of goods and that no other group consumes these goods at all. In that case the general equilibrium system could be decomposed into a number of quite independent sub-systems, since by assumption the demand for a certain group of goods is quite independent of the prices of goods falling outside that group. Again, decomposition could arise, if we decide on empirical grounds, that certain prices can be assumed fairly constant, or to

have a negligible effect on the demand for the commodities we are considering. These are all possible ways of cutting down the number of demand–supply relations we need in solving for any particular equilibrium price. In the discussions of interest-rate theory, for instance, the frequently met assumption that savings and investment are highly interest-inelastic is an obvious way of decomposing the system.

In making such assumptions, however, one very important point must be borne in mind: the price of any one good or service must generally affect at least the demand for one other good or service.[1] For we know that a change in the price of any one good will be associated with a substitution effect. This clearly involves a change in the demand for at least one other good, unless we assume that the income effect of the change in price is equal and opposite in sign to the substitution effect, and this would be a very heroic assumption indeed. For similar reasons, the quantity of any asset held must influence the demand for some other good and service unless we assume all income effects to be zero. Thus unless some very special assumptions, not usually found in the literature, are made, we shall normally require at least two excess-demand equations to determine any one price, or the equilibrium quantity of any asset. If this is correct, it will be impossible for us to find one particular market relation (excess-demand equation) which will be sufficient to determine the equilibrium rate of interest. It is the attempt to do this, nonetheless, which may be responsible for the continued controversy in this field, especially the L.P. versus L.F. dispute. By seeing in advance that such an attempt is usually doomed to failure we may save ourselves a lot of trouble.

Up to now we have interpreted the phrase " the price of a good (say i) is determined by the demand and supply for i " as meaning that we can find this price from one supply–demand relation (excess-demand equation) only. There is, however, an alternative interpretation. We could mean the phrase to imply that the price of i changes only if the excess demand for the ith good is different from zero. This interpretation we shall call the Klein interpretation.[2] The meaning of the phrase quoted is now made far more general. For while the assertion that one excess-demand equation is sufficient to determine the equilibrium price implies the Klein interpretation, the latter does not imply the former. Indeed, no assumptions leading to a decomposition of a general equilibrium system need be made in order to allow us to use the Klein interpretation of the phrase. This is of considerable advantage, especially since using this interpretation the assertion of the phrase can be subjected more easily to empirical tests. If then, we employ the Klein interpretation in analysing the two statements " the rate of interest is determined by liquidity preference " and " the rate of interest is determined by the demand and supply of loanable funds," our main task will be to see whether these two statements imply different behaviour of the rate of interest when there is disequilibrium. If they do, then they are two

[1] See, *e.g.*, J. L. Mosak, *General Equilibrium Theory in International Trade*, Principia Press, 1944, p. 25. [2] See L. R. Klein, *op. cit.*, *Econometrica*, July 1950.

distinct theories, and the choice between them must be made on empirical and not on theoretical grounds.

So much by way of general introduction. We will now turn to an examination of the classical revival led by Mr. Modigliani, which is based on a particular kind of decomposition of a general equilibrium system.

II

Mr. Modigliani's model, henceforth referred to as the *M*-model, is set out below. The notation is as follows: X = total real output, N = amount of labour employed, W/P = the real wage of labour and W its money wage, S = real savings and I = real investment, i is the rate of interest and M the (nominal) quantity of cash. The model consists of the following seven equations:

$$X = F(N) \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad \text{(M.1)}$$
$$W/P = F'(N) \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad \text{(M.2)}$$
$$N = N(W/P) \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad \text{(M.3)}$$
$$S = S(i, W/P, X) \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad \text{(M.4)}$$
$$I = I(i, W/P, X) \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad \text{(M.5)}$$
$$S = I \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad \text{(M.6)}$$
$$M = L(i, W.P/W, X) \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad \text{(M.7)}$$

Since the model is well known, we give only a brief statement of the meaning of the equations. (M.1) is the production function on the assumption of a constant stock of capital, (M.2) states that the real wage of labour is equal to labour's marginal (physical) product, (M.3) is the supply function of labour, which is homogeneous of zero degree in money wages and prices. (M.4) is the savings function and I the investment function, and (M.6) is self-explanatory. (M.7) is the equation of the demand for cash as a function of the interest rate, absolute prices and real income. Equations (M.1), (M.2) and (M.3) determine X, N and W/P, equations (M.4), (M.5) and (M.6) determine S, I and i, and equation (M.7) determines P.

It is on the basis of this model that Modigliani derives the following two "classical" propositions:

> If the supply function of labour is homogeneous of zero degree in all prices (including money wages) then—
>
> (i) the rate of interest is determined by investment and savings, and
>
> (ii) liquidity preference determines the level of prices and *not* the rate of interest.

Both the *M*-model and its conclusions have been criticised by Patinkin. His criticism, however, has apparently not convinced Mr. Modigliani and others.[1] We shall therefore devote this section to showing that both the *M*-model and its conclusions are incorrect.

[1] That it has not convinced Mr. Modigliani must be deduced from the reprinting of his article in *Readings in Monetary Theory* without either alteration or comment. That it has not convinced others can be deduced from Mr. Johnson's article, *op. cit.*, p. 104.

That this is so can be shown quite simply. It will be seen that equations (M.1)–(M.6) determine relative prices, the rate of interest and the output of all goods without involving the absolute level of prices. The latter is determined by (M.7). Money, therefore, in Mr. Modigliani's phrase, is " neutral." Now, neglecting bonds (as does Mr. Modigliani) we know from Walras' Law that the total demand for goods and money taken together must be identically equal to the total supply of goods and money taken together. It is therefore of considerable importance to the *M*-model to make certain that it is not also true that the total demand for everything excluding money is identically equal to the total supply of everything excluding money. For if this (Say's Law) were also implied, the demand for money would be identically equal to the supply of money, and we would have no equation (as distinct from an identity) to determine the absolute level of prices. It will therefore be sufficient for our purposes if we show that the following statement of Modigliani's is incorrect: " Under ' static ' assumptions money is neutral even without assuming Say's Law, if only people are assumed to behave ' rationally '; this is all the classical theory assumes or needs to assume." [1]

Let us assume that relative prices and the interest rate are such that the total demand for goods and services exceeds their total supply—a situation perfectly possible as long as we do not assume Say's law. If Mr. Modigliani is right, we can now find some level of absolute prices which will make the demand for money equal to its supply. Choosing such an absolute price has, by assumption, no effect on the total demand or supply of goods and services. But we have now arrived at a position where the total demand for goods and services exceeds their supply, but the demand for money is equal to the stock of money, and this clearly contradicts Walras' identity described in the previous paragraph. But in any case, on Modigliani's assumption, any change in the level of prices must change the demand and supply for money in the same proportion, since the demand for, and supply of goods is unaffected by such a change in prices. The level of prices therefore cannot equate the demand and supply of money and the only way of ensuring this equality is to assume Say's Law. Hence the *M*-model must leave the level of absolute prices indeterminate and Mr. Modigliani's conclusion II must be rejected.[2]

The intuitive reasons for rejecting the *M*-model are fairly obvious, and have been extensively discussed by Patinkin in another context. Rational behaviour presumably also refers to the holding of cash. If cash, then, is allowed into the utility function we easily see that the demand for at least one good must depend on absolute prices if the demand for money depends on

[1] *Op. cit.*, p. 217.

[2] It may be helpful to restate the argument in symbols. Let X_g and X_m be the excess demand for goods and money respectively Let P be the absolute price level of goods. By Walras' Law $PX_g + X_m \equiv 0$. Choose relative prices such that $X_g \neq 0$. We can now find a level of absolute prices P^* such that $X_m = 0$. But whatever the value of P, X_g remains unaffected by assumption. We have now come to the contradiction mentioned in the text, since at $P = P^*$ Walras' Law does not hold. But Walras' Law is an identity and must hold for any value of P. This contradiction can be resolved only by assuming Say's Law: $X_g \equiv 0$.

absolute prices. For, as was pointed out in Section I, we cannot hope to decompose a system into two parts from restrictions on the utility functions without running into difficulties. Thus money must be a substitute for all other goods entering into the utility function taken together. If, then, a change in the price level leaves all demands for goods and services unaffected it must mean that the amount of money people hold is always the equilibrium amount, whatever the price level, and hence the money equation cannot be used to determine the price level.

We have seen that conclusion (ii) of Mr. Modigliani is incorrect. What about conclusion (i)? One way of avoiding Say's Law in the *M*-model would be to allow absolute prices to enter into the equations relating to savings and investment. In that case we would need both (M.6) and (M.7) to be able to solve for the equilibrium rate of interest. In any case, we will need at least two equations, and on Mr. Modigliani's interpretation of the word " determine," conclusion (i) must also be rejected.

But suppose we used the Klein interpretation in our understanding of conclusion (i), could we then not, on the basis of a corrected *M*-model, say that the rate of interest is determined by savings and investment? To answer this question we must take note of the special interpretation Mr. Modigliani places on (M.4)–(M.6). He warns us that (M.4) and (M.5) " should in no way be confused with the schedules of supply of and demand for savings (or supply of and demand for securities)." In particular, (M.4) tells us " what part of their income people wish to devote to increasing their assets rather than to consumption at different levels of the rate of interest," while (M.5) is the " marginal-efficiency-of-investment function." Since securities, that is lending and borrowing, do not enter into the model, it is clear that the rate of interest is not determined by any market mechanism. Indeed, only those who save, invest, and never more than they save. This not only suggests that the model is rather unrealistic, but also that the Klein interpretation of the word " determine " is inappropriate. For the latter hinges on the possibility of *ex ante* excess demand, which is clearly impossible here on Mr. Modigliani's interpretation of (M.4) and (M.5) If we then wish to say that the rate of interest is determined (in the Klein sense) by savings and investment, we will not be able to do so on the basis of the *M*-model.

Before leaving this whole topic, and the only excuse for dwelling on it at some length is the influence the *M*-model appears to have gained, I would like to draw attention to the interpretation Mr. Modigliani places on (M.6) (the equality of savings and investment). After saying that (M.1)–(M.3) determine the level of real income he writes: " The saving schedule, equation (3.3), tells us what part of this income the community desires to save. The technical conditions (inventions, quantity of capital already in existence, etc.) expressed by the marginal-efficiency-of-investment function (3.2), determine the marginal efficiency of the amount of investment that the giving up of consumption permits undertaking: this is the equilibrium rate of interest." [1] This suggests two things: (*a*) it appears that savings, in spite

[1] *Op. cit.*, p. 219.

of the earlier quotation, are to be taken as independent of the rate of interest, and (*b*) that savings are always *identically* equal to investment. This makes it quite clear that the Klein interpretation cannot be applied to Mr. Modigliani's conclusion (i), and hence that the latter must be rejected on both interpretations of the word " determine " in that conclusion.

III

We have seen that the classical revival, at least as examplified by Mr. Modigliani, suffers from serious logical defects. Indeed, Mr. Patinkin has shown that all models based on the assumption of " neutral " money are open to similar objections. Quite apart from this, however, a realistic theory of interest, in which the latter varies whenever investment is not equal to saving, must allow for lending and borrowing. This of course, leads us straight into problems connected with liquidity preference and loanable funds. It is the intention of this section to compare the three theories, L.P., L.F. and I.S. of the rate of interest, in the setting of a Keynesian model.

We shall assume that there are only three kinds of assets: a capital (or producers') good (K), irredeemable bonds (B) and money (M). The stock of money is assumed constant. A debtor is regarded as holding negative bonds. All other goods are consumption goods and are perishable, so that no stocks of these can be held.

A plan to invest is a plan to increase the holding of K. In so far as investors plan to add to K the same amount as they plan to save out of current income, no market transaction is involved, and no *ex ante* gap between savings and investment can arise. Since this sort of situation is clearly of no interest to us, we shall now assume that investors plan to save nothing. (This is simpler than the assumption that they plan to save less than they invest, and does not affect my argument.) A plan to invest must now be accompanied by a plan to change the holdings of the remaining assets money and bonds. (Investors will plan to supply bonds and/or money). On the other hand, the plan to save is a plan to add to the holdings of bonds and/or money on the part of savers. Hence if investment and saving plans are fulfilled, the increase in the physical assets (K) of the community are equal to the increase in the stock of money and bonds held by savers. Hence if we write D_a for the demand for more assets and S_a the supply of more assets, and S and I for saving and investment (*ex ante*), respectively, we have

$$(D_a - S_a) = X_a = (S - I) \quad . \quad . \quad . \quad . \quad \text{(III.1)}$$

and we can refer to this difference as the excess demand for assets (X_a).

We now state the I.S. theory of the rate of interest: the rate of interest will change if, and only if, the excess demand for assets is different from zero. X_a is made up of the excess demand for bonds (X_b) and the excess demand for money (X_m). The L.F. theory of the rate of interest now is: the rate of interest will change if, and only if, the excess demand for one asset, bonds, is different from zero. Before stating the L.F. theory, let us

recall what Keynes meant by a decision due to liquidity preference. He writes:

> "The psychological time-preferences of an individual require two distinct sets of decisions to carry them out completely. The first is concerned with that aspect of time-preference which I have called the *propensity to consume*, which operating under the influence of the various motives set forth in Book III, determines for each individual how much of his income he will consume and how much he will reserve in *some* form of command over future consumption. . . . But this decision having been made, there is a further decision which awaits him, namely, in *what form* he will hold the command over future consumption which he has reserved, whether out of his current income or from previous savings. . . . In other words, what is the degree of his *liquidity-preference* —where an individual's liquidity-preference is given by a schedule of the amounts of his resources, valued in terms of money or of wage-units, which he will wish to retain in the form of money in different sets of circumstances?" [1]

On the basis of this extract we could phrase the L.P. theory as follows: the rate of interest will change if, and only if, there is an attempt to substitute money for some other *asset*. I would like to draw particular attention to the word in italics in this quotation. L.P. is *not* intended to explain why people hold money rather than consumers' goods, but rather why they hold money instead of some other asset. If this is granted, then we are in some difficulty in identifying one particular excess demand as representing L.P., as we identified X_a and X_b as representing I.S. and L.F. Let us rewrite (III.1) as

$$X_a = X_m + X_b = (S - I) \quad . \quad . \quad . \quad . \quad \text{(III.1a)}$$

Suppose we restate the L.P. theory as: the rate of interest will change if and only if, $X_m \neq 0$. Then it is clear that the rate of interest would change if $X_b = 0$ and

$$X_m = (S - I) = X_a \neq 0 \quad . \quad . \quad . \quad . \quad \text{(III.2)}$$

But now the excess demand for money does not represent an attempt to substitute money for other assets or vice versa, but money for consumption goods or vice versa. Thus, for instance, in the case of $(S - I) > 0$, we would have to say that people as a whole are attempting to become more liquid by supplying more goods and services than they are demanding. But this is not, as the quotation shows, what Keynes understood by the forces of liquidity preference.

Yet in spite of this, the custom of identifying X_m with the liquidity-preference equation is well established. The reason for this is not far to seek. The Keynesian model of the General Theory has the following characteristics: (*a*) money wages are fixed and given from outside, (*b*) there are constant returns to scale (unemployed resources) so that all prices are wage-determined, (*c*) there are no lags of any sort. Since all prices are already determined, the only unknowns are income (Y) and the rate of interest. (P_b = the price of bonds = inverse of the rate of interest.) Since

[1] J. M. Keynes, *The General Theory of Employment, Interest and Money*, Macmillan, 1936, p. 166.

(III.1a) is an identity, we can always deduce one of the excess demands (X_a, X_m, X_b) from the remaining two. We thus have two (excess-demand) equations to determine our two unknowns. Now, according to Keynes, incomes change if, and only if, $X_a \neq 0$. In the General Theory and later in controversies with Professor Robertson, he seemed to envisage the following sequence. Suppose $X_a < 0$, then incomes change instantaneously to make $X_a = 0$. When that has happened $X_m \equiv -X_b$. If $X_m \neq 0$ the rate of interest changes to make $X_m = 0$. This may again lead to $X_a \neq 0$, which causes a further change in income, which in turn affects X_m and the rate of interest. The point about this sequence of events is that the excess demand for money is always identically equal to the excess supply of bonds, so that there is never an attempt to substitute money for consumption goods or services. In effect, this kind of sequence is equivalent to conducting a partial analysis, by first fixing interest and finding the equilibrium level of income, and then holding the latter as given and determining the equilibrium rate of interest and so on.

Since, however, there is no reason to expect this sequence of events, and since most of the controversies are due to an attempt to fit interest-rate theory into a general rather than a partial analysis, we must, when restating the L.P. theory in a general model, be careful not to incorporate into it elements which derive from the special procedure of Keynes. In particular, liquidity preference must be taken as determining the *ratio* (" form ") in which assets are demanded, and *not* the total quantity of assets demanded or supplied. Once the sequence procedure is dropped, a zero excess demand for money no longer implies that people are holding assets in the " form " in which they desire and that liquidity preference is satisfied, nor does an excess demand for money different from zero imply that people are attempting to change the " form " in which they hold assets and that liquidity preference is not satisfied. Since this is a point of some importance to our argument, we will restate it in slightly different terms.

From the quotation of the General Theory given above, it is clear, I think, that if Keynes had written out a utility function he would have included in the latter a term (A) for total assets held and some terms to describe the composition of those assets. Suppose there are only two such assets a_1 and a_2. Let x stand for all other goods and services consumed or supplied. Then if we wrote the utility function as

$$U = U\left(x, A, \frac{a_1}{a_2}\right) \quad . \quad . \quad . \quad . \quad . \quad \text{(III.3)}$$

the two decisions (the decision to save and the decision concerning the form in which to hold assets) are clearly brought out. This is not the case if we write

$$U = U(x, a_1, a_2) \quad . \quad . \quad . \quad . \quad . \quad . \quad \text{(III.4)}$$

Formally, of course, these two ways of writing the utility function should make no difference to the analysis. There is, however, a difference in inter-

pretation. For if a_1 represents money, then on the basis of (III.3) we would say that L.P. is satisfied when the individual holds assets in the desired ratio $\frac{a_1}{a_2}$, while on the basis of (III.4) we would say that L.P. is satisfied when the individual holds all of a_1 he desires. It is the latter interpretation which is customary. But liquidity preference, as the phrase vividly denotes, describes the *preference* of money over other assets. This preference cannot be described by the total demand for money, but only by the demand for money relative to the demand for other assets.

If this interpretation of L.P. is accepted, we could state the L.P. theory of interest as follows: the rate of interest changes if, and only if, the ratio in which assets are demanded is different from the ratio in which they are supplied.[1] Let us now see to what sort of model this proposition leads us.

It will be remembered that we assumed there to be three kinds of assets: a capital good (K), money and bonds. Investors decide to substitute more of the capital good for money and bonds. They therefore supply money and bonds in a certain ratio and demand more of the capital good from the producers of that good. If there are no production lags their demand for more K will always be satisfied. Savers, on the other hand, decide to increase their total assets held, by demanding more bonds and money in a certain ratio. Let us now also assume a Robertsonian consumption lag so that the total demand for goods and services plus the total demand for money and bonds is identically equal to the income of the previous period plus the stock of money, K and bonds available at the beginning of the period. Since there are no production lags, the total supply of goods and services will always be equal to the total of these demanded. We therefore obtain the following identity:

$$X_a \equiv Y^0 - Y^1 \quad . \quad . \quad . \quad . \quad . \quad . \quad \text{(III.5)}$$

where Y^0 is the income of the previous period and Y^1 is the income of the current period.

The first condition of equilibrium is that

$$X_a \equiv Y^0 - Y^1 = 0 \quad . \quad . \quad . \quad . \quad . \quad \text{(III.6)}$$

Now X_a depends on the rate of interest (i), Y^0 and the total volume of assets held (A). It also depends, of course, on prices, but since these are assumed fixed we can ignore them. Following Keynes, we can assume that in the short period the total volume of assets is fixed, *i.e.*, that the addition made to assets by investment is negligible in the short period. We thus have two unknowns: i and Y^0, and at the moment only one equation. Let us now, instead of using either the excess demand for money or for bonds for the missing equation, use the condition that L.P. must be satisfied, that is: the

[1] There is no difficulty of fitting the " transaction " demand for money into this formulation. " Planned," or if we like, *ex ante* L.P. refers to the form in which people plan to hold assets at the *end* of the period. This, using the Robertsonian consumption lag, then includes provision for transaction purposes in the subsequent period.

ratio of money to bonds available should equal the ratio in which they are demanded. Call the difference in these two ratios X_r, so that our condition becomes:

$$X_r = 0 \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad \text{(III.7)}$$

X_r will depend on the same variables as X_a. It should also be noted that if both (III.6) and (III.7) hold, X_m and X_b will both be zero.

We have now a formal model incorporating our interpretations of the L.P. theory of interest: the rate of interest changes only if $X_r \neq 0$. However, models of this sort are of little interest unless they help us to explain the process by which equilibrium is achieved. The simplest way of doing this is to compare L.P. and L.F. on the basis of this model.

It will be remembered that our interpretation of the L.F. theory is: the rate of interest will change only if $X_b \neq 0$. It will easily be seen that if in our model $X_a = 0$, then $X_b \neq 0$ necessarily implies $X_r \neq 0$. Thus in our construction, just as in the usual ones, L.P. and L.F. come to the same thing if *ex ante* saving is equal to *ex ante* investment. Our main interest therefore centres on the case where the latter equality does not hold.

Let us then assume that $X_a < 0$ (*ex ante* saving < *ax ante* investment), that $X_b > 0$ and $X_r = 0$. In this case it would appear that L.F. predicts a change (rise) in the rate of interest, while L.P. predicts that the rate of interest will remain constant. We must now, however, take note of a point of considerable importance. All excess-demand equations are interpreted as holding *ex ante*. Plans are thus regarded as being formulated for a certain (finite) period of time, during which they undergo no voluntary change. Following Robertson, we assume savings plans to be formulated for one income period. In our model we have assumed (again following Robertson) that investment plans are fulfilled. But that implies, as Professor Robertson has pointed out in his well-known controversy with Keynes, that investors have secured the necessary "finance." [1] It thus seems that there are *two* transactions involved in a given income period: a sale of bonds for money and a purchase of investment goods. This in turn implies—and to my mind quite realistically—that the planning period for the composition of assets is shorter than the planning period for savings (addition to assets). In our model, however, both X_a and X_r are interpreted as resulting from plans formulated for one income period. It is this discrepancy which will explain why L.P. and L.F. seem to give different predictions.

When we say that X_r is defined for one income period in our model, we mean that the plans concerning the composition of money and bonds refer to the composition people desire to hold at the end of the income period. But in the first part of the income period the ratio in which money and bonds are demanded reflects the fact that investors are attempting to become more liquid in order to purchase investment goods in the second part of the income period. Investors are only planning to hold this higher

[1] D. H. Robertson, "Mr. Keynes and 'Finance.' A Note," ECONOMIC JOURNAL, XLVIII, 1938, pp. 314–18; J. M. Keynes, Comment, *ibid.*, 318–22.

ratio temporarily, and this temporary demand is *not* reflected in X_r in our model.

With this in mind let us trace out the process under our present assumptions. The rate of interest is such that the ratio in which people plan to hold money and bonds at the end of the income period is equal to the ratio in which they will be available. At the beginning of the period, however, the ratio in which money and bonds are demanded is greater than this, because investors are demanding money with which to purchase investment goods. Hence the rate of interest will rise. Since people planning to invest are offering bonds at the outset of the period, the only way investors can obtain their finance is by inducing some people to increase the ratio of bonds to money in their existing assets. The rate of interest will thus rise to the point at which it is just not worthwhile for investors to offer further inducements to holders of money to substitute bonds for the latter. At that rate of interest the demand for bonds will equal their supply. Once this transaction is complete, investors buy investment goods. In other words, they now reduce their ratio of money to bonds. But that means that the ratio of money to bonds held by other people increases. This leads to a substitution of money for bonds and a fall in the rate of interest. The rate of interest will fall as long as the actual ratio of money to bonds is higher than that desired for the end of the income period. Thus the rate of interest will again assume the value it had at the beginning of the income period. At the end of the income period therefore everyone holds assets in the form they had planned to hold them, the rate of interest is the same as at the beginning of the period, total assets held are higher than planned and incomes have increased. The unforeseen changes will then lead to a change in the ratio of money and bonds desired for the end of the subsequent period.

If this analysis is correct, then the main difference between L.P. and L.F. lies in the period chosen for consideration. The L.P. theory ignores the intermediate transactions which occur when people are attempting to substitute bonds for capital goods. Professor Robertson, in my opinion rightly, insisted that this obscures the important point that bonds must always first be sold for money, so that the plan to substitute bonds for capital goods involves three groups: the investors, the producers of investment goods and holders of cash. (Of course these groups will overlap.) As we have seen, however, the logic of a Walrasian equilibrium system makes it quite possible for the *ex ante* excess demand for money to be zero, while the excess supply of bonds is equal to the excess of planned investment over planned savings. But plans in people's minds affect only market variables, as they are executed and in the manner in which they are executed. Since the bonds are never offered directly to producers in return for capital goods, it is important that the " sub-transactions " should be taken into account, if we wish to see how and why interest rates (or indeed any other variable) should change when plans are inconsistent. The Walrasian model, by taking one whole income period as its basis, hides these " subtransactions."

If we then assume that plans concerning the composition of assets are

continuously variable (as we have done in our example) we can state the two theories as follows:

> L.P.: The rate of interest ruling at the end of one income period will be different from that ruling at the beginning only if people plan to hold money and bonds at the end of the period in a different ratio from that which will be available.
>
> L.F.: The rate of interest at the end of one sub-transaction period will be different from that ruling at the beginning only if people plan to demand more bonds than they supply for that period. This can be restated in the equivalent form: the rate of interest at the end of a sub-transaction period will differ from the value it had at the beginning of the period only if the ratio in which money and bonds are demanded for the end of that period is different from the ratio in which it will be available.

The predictions of the two theories differ because they concern the value the rate of interest will have at different times.

We must now note two difficulties:

First, it must be admitted that the period analysis is highly artificial, since while people may take decisions discontinuously, not all people take decisions at the same time. This probably means that L.F. as here formulated is more useful than L.P., since we will never be able to find a time when the rate of interest is independent of the demand for " finance."

Secondly, we have allowed only three assets: money, bonds and capital goods. Increasing the number of monetary assets, *i.e.*, having different kinds of claims to debt, will not greatly affect our analysis, since we get as many new equations as unknowns. That is for each interest rate we have the condition that the ratio in which money and that particular claim are planned to be supplied is equal to the ratio in which they are planned to be held. If we introduce further non-monetary assets, in particular what Mr. Kaldor has called " Verbrauch's Güter,"[1] then the analysis becomes far more complicated. We would now have to introduce *expected* prices as unknowns, and would almost certainly have to abandon the assumption that all current prices are fixed and given. A complicated stock *and* flow model would result. I have constructed a number of such models, but do not feel that they are at a stage where I can say anything that is useful.

To sum up: L.P. refers to the composition of assets people desire to hold. In a monetary economy, however, there is a difference between the composition of assets people desire in the course of the income period and that which they desire to hold at the end. Liquidity preference refers to the composition of assets people desire to hold when all market transactions necessary for achieving that composition are completed. Loanable funds, on the other hand, is concerned with the flow of assets on to the market during the income period. It therefore takes account of the intermediate

[1] N. Kaldor, " Speculation and Economic Stability," *Review of Economic Studies*, Vol. VII, 1939–40, p. 3.

composition of assets people desire when they are still in the process of completing their transactions. Thus investors, desiring to hold at the end of the income period a higher ratio of capital goods to money and bonds, first desire an increased ratio of money to bonds in order to be able to make the desired substitution for capital goods. This desire is not neglected in the loanable-fund theory. The predictions of the two theories, however, are not mutually exclusive, for the simple reason that the predictions refer to different time periods. When Professor Robertson refers to the excess demand for bonds it must be understood as holding for any one moment of time; in the L.P. theory the excess demand for bonds must be interpreted as the excess demand (the incompatibility of plans remaining) after all intermediate transactions have been completed.

Let us now examine the claims of the I.S. theory. We first note an interesting, formal property of our model. The I.S. theory states that the rate of interest will change only if $X_a \neq 0$. Suppose, then, that $X_a = 0$ but $X_r \neq 0$. Since by definition incomes change only if $X_a \neq 0$, it follows that neither interest rates nor incomes will change. But, then, there is no means by which plans to hold money and bonds can be made consistent, *i.e.*, there is no mechanism for bringing about an equilibrium in asset holdings. It would therefore appear that on purely formal grounds the I.S. theory would have to be rejected, although this, of course, does *not* mean that savings and investment decisions have no influence on the rate of interest.

We can now put the reasons for rejecting the I.S. theory less formally. A discrepancy in plans can only affect market variables in so far as this discrepancy is in some way manifested in the market by the things people actually do or *actively* attempt to do. From our present (Keynesian) assumptions, we know that whatever volume of investment goods investors actually demand will be supplied at constant price. As far as the price of investment goods is concerned, a discrepancy in the plans to save and invest can have no importance. The same is true of the price of consumption goods. We know however that a discrepancy in the plans to invest and save will be reflected in discrepancies in the plans to supply and demand money and/or bonds.

To say then that the rate of interest varies only if planned investment and savings differ is the same as to say that it varies only if the sum of the excess demands of money *and* bonds is different from zero. But this in turn implies that when planned investment equals planned saving, the rate of interest will not change even though there is an excess demand for money and a corresponding excess supply of bonds. That is, the rate of interest will not vary even when there is an attempt to substitute money for bonds or *vice versa* and when both the "markets" for money and bonds are out of equilibrium. But then we are left with no market variable, a change of which could bring the two markets into equilibrium.

If these interpretations of L.P., L.F. and I.S. in a Keynesian model are accepted, then we can sum up our conclusions as follows. People take two decisions: what volume of assets and what composition of those assets to hold at the end of the income period. If plans are incompatible, certain of

those plans will not materialise. But the planning period for the composition of assets, in particular the ratio of money to bonds, is much shorter than that for the volume of assets. It is therefore assumed that at the end of the income period the rate of interest is such, that on the basis of the previous period's income, people are willing to hold assets in the form in which they are available. On the other hand, it is not possible for consumption, investment and volume of assets plans to be fulfilled simultaneously. The Keynesian assumption is that it is undesired accretions or depletions in the total volume of assets which reflect the incompatibility of plans. Thus the rate of interest varies during the period to make plans concerning the composition of assets compatible, but it does not affect the plans concerning the volume of assets people desire during the income period. The rate of interest therefore is affected only after undesired changes in the volume of assets (changes in income) have affected the composition of assets people desire. The loanable funds theory, as we have interpreted it, differs from this only in so far as it is concerned with the value of the rate of interest at any one moment of time during the income period.

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THE PRODUCTION FUNCTION

A PRODUCTION function purports to exhibit the technical relations between factors of production and output, and to derive from them the relation between their prices and the relative quantities employed in conditions of long-run equilibrium. Thus a production function may purport to show how output per man and the rate of real wages rises, while the rate of interest falls, as the amount of capital per man employed is increased. The idea on which it is based is that the relative prices of the factors of production, given the quantities in existence, are determined by their technical productive power.

It is possible to draw up a purely technical production function for a robin. The number of robin-minutes worked per day on his territory rises from a minimum when the cock is alone to a maximum when the pair are feeding the fledglings. Assuming that technical conditions remain constant over the period, we can draw up a schedule showing how output (of grubs caught) per robin-minute varies with robin-minutes worked per day. The advantage to a robin of having a more fertile territory (in terms of grubs per square yard, allowing for infestation by birds of other species who do not recognise the robin's territorial rights) shows itself in a shorter working day (for total needs are rigid) and more time for singing.[1]

For human production, even of the simplest kind, the function cannot be expressed in work alone. To produce an output to-day, work has to be combined with pre-existing goods, and the valuation of these goods affects the technique of production. From a purely engineering point of view, a steam-hammer is a powerful instrument for cracking nuts and gold the best material for lining drain-pipes.

In any given situation in an industrial economy there is, so to speak, a technical frontier. A more highly mechanised technique than that in use would increase output per man-hour of current employment, and so save labour cost, but it is not being used because the additional expense of equipment would make it less profitable than the technique actually in operation. Where two techniques lie close to each other on either side of the frontier or intermingle across it, the profitability of using them is more or less equal, for if the higher technique—say, Alpha—were much more profitable than the lower one, Beta, the frontier would have already moved beyond Beta, and if it were much less profitable, Alpha would lie right outside the frontier.

When a switch takes place from Beta to Alpha technique, the amount of labour currently employed remaining the same, output is increased. The increment of output may be called the Alpha–Beta marginal product of investment.

[1] See David Lack, *The Life of the Robin* (Pelican edition), p. 62.

To make the switch involves investment. An outfit of capital goods required for Alpha technique costs more than an outfit for Beta technique (otherwise Beta, with its lower productivity, would not be an economic proposition). Thus we can regard the investment required to make the switch (in equilibrium conditions) as the cost of an Alpha plant (using plant to mean the whole outfit of capital goods required to operate the technique, including the pipe-line of work in progress) *minus* the cost of a Beta plant.

To an individual capitalist the cost of the increment of capital is a certain amount of new finance, that has to be added to the amortisation fund of a used-up Beta plant in order to procure an Alpha plant. Its marginal prospective return to him is the addition to the future stream of quasi-rent that will be made by having it rather than not having it. He compares the rate of return over cost with the rate of interest which represents the hire-price of the finance, and makes the investment if the excess of the one over the other appears an adequate inducement to take the risk involved.

Does this marginal return on of investment finance correspond to technical relations in the economy ?

The cost of the investment to society can be regarded as the man-hours of work and the pre-existing goods (themselves the product of earlier work and goods) required to construct an Alpha plant *minus* the cost formerly embodied in a Beta plant) which has been released from it by using it for production and accumulating an amortisation fund from the proceeds. We are therefore faced with the problem of expressing as a total sum costs which consist of miscellaneous items—labour time of different kinds and goods (or the services of long-lived goods) of great variety. If we sum them simply at their market prices, we are back at the calculation in terms of finance. But we are trying to penetrate the veil of financial values to find the real productivity of real investment.

The goods (or services of long-lived goods) can be expressed as quantities of labour time performed at various dates in the past when the goods were produced. But we can no more sum this labour time in terms of man-hours than we can sum apples and bilberries in terms of fruit. To sum the cost of expenditures of labour time at various dates it is necessary to accumulate them from the time when they were performed till to-day at some rate of interest, subtracting from this cost the yield with which they must be credited for value that they have produced meanwhile.

The only way to make any sense of such a calculation is to apply it to an economy which is, and has long been, in a state of *tranquillity* in which the rate of profit realised at any present moment has always turned out to be what it was expected to be when the relevant investment decisions were taken.[1] In such a situation we can specify the rate of interest (corresponding to the rate of profit) which is and has been ruling.

Taking a rate of interest arrived at this way, we can specify the cost of

[1] A state of tranquillity is a necessary but not a sufficient condition for stationary equilibrium as it is ordinarily understood.

the investment in terms of man-hours. The calculation involved is extremely complicated,[1] but there is no difficulty of principle involved.

The return on the investment can also be expressed in man-hours—as a saving in the labour time required to produce a given output, due to using Alpha rather than Beta technique. The return over cost can then be exhibited as a rate per cent.

This rate, however, has no operative force. It has a certain affinity with the concept of the return to investment in a socialist economy. Some rate of interest is necessary to make sense of the concept of the real cost of investment, for, until Bliss is reached (when all possible useful investments have already been made), a man-hour of labour that will yield a product to-day (that is, work performed some time ago) is more useful than a man-hour to-day, which will yield a product at some future date, or over a long period of future time. But the rate of interest derived from the rate of profit in a capitalist economy in an imaginary state of tranquillity has no particular relevance for the socialist economy.

In a capitalist economy, even if it is actually in a state of tranquillity, the prospect of a return of future man-hours has no influence on anyone's conduct. It is not open to a worker to decide to save his future labour by building an Alpha plant, and to a capitalist the saving in cost due to an investment does not consist in labour time but in the wage he has to pay for labour time.

In a competitive economy the purchasing power of money alters with the technique of production. If money wage-rates remain constant, prices fall as output per man-hour rises, unless monopolists are powerful enough to hold them up while costs are falling; or if prices are constant, money wage-rates must rise to keep them so. The cost of investment in terms of money, therefore, is quite arbitrary. But a given rate of profit, with a given technique, specifies a given wage-rate in terms of product.[2] We can, therefore, reckon the cost of investment in terms of product, and regard the process of investment as an expenditure of product which causes labour and capital goods to be employed in constructing plant. The amount of the investment, then, is a number of man-hours, reckoned as above, multiplied by the product wage-rate, while the return is a flow of future product. Thus the marginal productivity of the investment can be expressed as the percentage ratio of the latter to the former.

At the technical frontier this marginal rate of return is equal to the rate of profit, for the position of the frontier is settled by the action of capitalists carrying out investment (and reinvestment of amortisation funds) up to the point where a switch to Alpha technique would yield no more than can be got by carrying on with Beta technique.

[1] See "The Value of Invested Capital," D. G. Champernowne and R. F. Kahn, *Review of Economic Studies*, Vol. XXI (2), No. 55, 1953–54.

[2] This, of course, is not the same thing as the real wage-rate, for it is reckoned in terms of output in general, including luxuries and capital goods, while the real wage-rate consists only of those goods which the workers consume.

But now it is clear that there is a flaw in the calculation. At each technical frontier there is a different rate of profit ruling, and so, to compare the cost of investment at different frontiers, we have to use different rates of interest. Even if two outfits of capital goods would look very much alike if we walked round the factories, or weigh the same if we reckoned up their steel content, indeed, even if they are identical in every physical respect, yet they represent two different amounts of capital if they have been produced at different rates of interest. The relation between the real costs of the sets of capital goods, corresponding to different techniques, depends partly upon how their respective costs (in terms of man-hours) are affected by differences in the interest rate. In general, a given difference in the interest rate will have a large effect where the capital goods have taken a long time to construct and have a long period of useful life. All sorts of peculiar and paradoxical-seeming relationships are possible between pairs of costs. We can, for instance, construct a case in which a lower technique, at a higher product wage-rate, yields a lower rate of profit than a higher technique.[1]

Given the cost of an investment in man-hours, we can reckon its cost in terms of product by multiplying by the product wage-rate that corresponds to the rate of interest at which the calculation was made. A lower rate of interest corresponds to a higher product wage; thus, in general, physically similar capital goods represent a smaller investment in terms of man-hours and a larger investment in terms of product, at a lower interest rate.

If we had all the data, we could set up a scheme showing the output, product wage-rate, product value of capital goods and rate of profit at each technical frontier. Then, if we rule out the cranky cases, we can draw a curve which, on paper, would look like a production function, showing the product wage-rate rising, and the rate of profit falling, as capital per man-hour increases in terms of product.

But this scheme is totally devoid of significance, for each point on the curve imples a particular past history in which the rate of interest has been that which corresponds to the rate of profit ruling at that point. To move from one point to another—say to push out the technical frontier by increasing the amount of capital per man—requires us to go back into the past and start again.

In reality accumulation does take place, and it seems safe to say that an accumulation of capital relatively to labour does tend (provided monopoly is not too strong) to raise real wages. In reality the advance from one technique to another is accompanied by a gain of know-how (even if major inventions are not being made while the accumulation is taking place), so that it is by no means necessarily accompanied by a fall in the rate of profit.

We may, however, rule out technical progress and suppose that all possible techniques co-exist in the form of blue-prints (each specifying the capital goods required for the technique and the time-pattern of costs incurred in

[1] See Joan Robinson, "The Production Function and the Theory of Capital"; and D. G. Champernowne, "The Production Function and the Theory of Capital: A Comment," *Review of Economic Studies*, Vol. XXI (2), No. 55, 1953–54.

making them). Then, if accumulation is pushing out the technical frontier, it must be accompanied by a fall in the rate of profit. We have to make up our minds how to proceed with the analysis (which, of course, applies only to an imaginary world in which accumulation of capital takes place without accumulation of technical knowledge). Either the fall in the rate of profit is assumed to be foreseen (perhaps the capitalists are supposed to have read the neo-classical economic text-books and to believe in the production function) so that accumulation takes place in a state of tranquillity, or the fall in the rate of profit is assumed to be a disappointment.

In the first case, we have to assume that the rate of profit is expected to move in just the way that in fact it does move, taking into account the effect upon their conduct of the fact that the capitalists expect it to move in that way. When the rate of profit is expected to alter, the rate of interest consists of a spectrum of rates corresponding to loans for different lengths of time. The rate of interest falls with the rate of profit (if it did not, tranquillity would be rudely shattered by a slump), and the rate on a shorter loan must exceed the rate on a longer loan sufficiently to compensate for the rise in capital value of the longer bond that is expected to take place during the currency of the shorter loan. These rates have to be taken into account in calculating the cost of capital goods. An economist who can work out this analysis is a clever man, and it seems a pity for him to spend his time on what is in its very nature a purely artificial problem.

Alternatively, if expectations are liable to be disappointed, we must assume that capitalists have learned not to be cocksure. We are in a world of uncertainty, where the fluctuations of effective demand bedevil economic life, and accumulation takes place in fits and starts. The expected rate of return on investment is then a vague and emotional idea in the heads of capitalists, and, since present values are jumping about relatively to past costs, there is no precise and unambiguous meaning for the realised rate of profit.

The fallacy at the root of the production function is the idea that it is possible to specify purely technical relations, not involving prices, in a human economy. Even Robinson Crusoe does not provide an example of an economy for which this idea is valid. He looks before and after and plans productive processes that take time to carry through. He cannot build himself a hut unless he has food to eat while he is unable to go fishing, and the price, from his point of view, of future shelter in terms of stocks of food comes into his calculation (along with his evaluation of the trouble involved) of whether it is worth his while to build the hut. Only the robins, living in a timeless present, satisfy the conditions required for the neo-classical analysis of production to make sense.

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NUMBERS OF SHOPS AND PRODUCTIVITY IN RETAIL DISTRIBUTION IN GREAT BRITAIN, THE UNITED STATES AND CANADA[1]

1. THE publication, at this time, of the first official census of the British retail and service trades [2] at last provides sufficiently comprehensive statistics to enable us to make a systematic comparison of the structure and productivity of the British distributive trades with those in North America. The results of making a comparison of numbers of shops seem to us sufficiently striking to warrant separate publication in the present article.

Our first task in comparing the structure of the distributive trades in Britain, the United States and Canada was to secure reasonable comparability of the basic census data.[3] We found first, that Britain, " the nation of shopkeepers," has, in fact, roughly the same number of shops [4] relatively to population as there are in the United States and Canada. Secondly, an analysis by particular trades shows that in Great Britain there are relatively many more shops retailing staple products or necessaries, while in North America there are relatively many more shops selling luxuries. We attribute this pattern to the joint influence on numbers of shops of higher North American incomes and of higher productivity in retail distribution there. We find that similar patterns are also in evidence in other inter-regional and historical comparisons. Thirdly, an examination of the volume of merchandise sold at retail establishes a very strong presumption that North American labour-productivity [5] is higher than British in almost all branches of the distributive trades. This higher productivity is closely associated with the larger scale of retail outlets in the U.S.A., but we find, fourthly, that the extent of chain store operation and, thus, the importance of large-scale organisation in retailing is greater in Great Britain than in North America.

[1] We are indebted to the authorities in charge of the Conditional Aid Programme for making finance available for carrying out our research project. One of the authors is also indebted to the Rockefeller Foundation for financing two visits to North America which enabled her to study retailing there at first hand. We have had much assistance from the Statistics Division of the Board of Trade, London, the United States Bureau of the Census and the Dominion Bureau of Statistics, Canada, and from Mr. Milton Gilbert, Organisation for European Economic Co-operation. We are also much indebted to the Oxford University Institute of Statistics for providing us with research facilities and to its members for their criticisms of our paper.

Mrs. Naomi Connelly has been responsible for preparing our tables for publication.

[2] Board of Trade, *Census of Distribution and Other Services*, 1950. Vols. I and II. (London: HMSO, 1953 and 1954).

[3] As our reconciliations have been vetted by the British, United States and Canadian census authorities, other research workers may wish to make use of them. We shall be glad to make them available for this purpose.

[4] The definition of shops used in this article covers all retail and service establishments within the scope of the British *Census of Distribution and Other Services*, 1950, Vols. I and II.

[5] For a discussion of the measure of productivity used in this article and its limitations, see footnote 1, p. 76 and footnote 4, p. 79.

2. The scope of the latest United States and Canadian censuses is a good deal wider than that of the British census of 1950, particularly in the service trades. Moreover, while the kind of business classifications employed in the United States and Canadian censuses are similar, the British classification differs from them to a considerable extent. The necessity of securing comparability of the individual kinds of business derives from the need for regarding the distributive industry as being composed of a number of distinct trades, the structure and behaviour of which differ a good deal.

TABLE I

Great Britain, the United States and Canada: Retail and Service Trades—Numbers of Shops [1]

Kind of business by major groups of the British *Census of Distribution* (1950).	Number of shops, Great Britain (1950).	% of total.	Number of shops, U.S.A. (1948).	% of total.	Number of shops, Canada (1951).	% of total.
I. Grocery group	129,345	19·5	387,405	19·6	34,596	20·1
II. Other food retailers	126,701	19·1	139,137	7·0	16,348	9·5
III. Confectioners, tobacconists and newsagents	66,312	10·0	54,203	2·7	11,564	6·7
IV. Clothing group [2]	89,269	13·5	149,241	7·6	20,166	11·7
V. Hardware group	30,223	4·6	76,319	3·9	7,656	4·4
VI. Booksellers and stationers	9,528	1·4	7,312	0·4	643	0·4
VII. Chemists' goods and photographic goods group	16,733	2·5	58,826	2·9	4,719	2·7
VIII. Furniture group	16,086	2·4	59,639	3·0	3,076	1·8
IX. Jewellery, leather and sports goods group	13,944	2·1	41,832	2·1	4,050	2·3
X. General group [3]	1,442	0·2	22,790	1·1	2,053	1·2
XI. Coal, builders' materials and corn group	20,137	3·0	76,727	3·9	3,933	2·3
XII. Other non-food retailers	11,423	1·7	51,583	2·6	3,403	2·0
XIII. Catering group [4]	45,195	6·8	194,123	9·8	13,987	8·1
XIV. Hairdressers	29,827	4·5	169,081	8·6	12,737	7·4
XV. Funeral furnishers	3,404	0·5	18,675	0·9	1,091	0·6
XVI. Portrait photographers	2,320	0·3	11,549	0·6	1,057	0·6
XVII. Repairers group	22,527	3·4	92,356	4·7	7,608	4·4
XVIII–XIX. Motor vehicle dealers and repairers, cycles, accessories and garages group	28,981	4·4	363,277	18·4	23,738	13·8
TOTAL	663,397	100	1,974,075	100	172,425	100

Sources: Great Britain: *Census of Distribution and Other Services*, 1950, Vol. II, Table 1.
U.S.A.: *Census of Business*, 1948, Vol. I, Table 1c, and Vol. VI, Table 1a.
Canada: *Ninth Census of Canada*, 1951; *Distribution (Retail Trade), Bulletin 7–2*; and data communicated by the Dominion Bureau of Statistics, Ottawa.

[1] Provisional data. The adjustments required for securing exact statistical comparability of numbers of shops are of three kinds: those relating to (i) the unequal scope of the censuses, in terms of the kinds of business covered, (ii) the unequal scope of the censuses in other respects (*e.g.*, in respect of the treatment of establishments also carrying on manufacturing, wholesaling, etc. and in respect of the types of establishments covered) and (iii) the unequal coverage by the censuses of the total number of establishments proper to them. The figures shown in the table are fully adjusted in respect of (i), partially in respect of (ii), and not at all in respect of (iii). The errors due to this may be assumed to be small. It is known that an important part of the error in respect of (ii) results in the British figures being overstated, but that the error in respect of (iii) results in the British figures being understated. The foregoing also applies to all data in subsequent tables.

[2] Including "other general stores." [3] Department and variety stores only. [4] Excluding canteens.

The results of reconciling the classifications are shown in Table I.[1]

[1] It should be noted that, apart from the statistical limitations on the accuracy of our reconciliations which are referred to in note 1 of Table I, there are also some kind of business groups in which the reconciliations cannot, in the nature of the case, secure exact comparability. Thus, North American drug stores, which mostly sell a very wide range of goods and operate soda fountains, are classed against British chemists' shops. A less obvious difficulty arises in the confectioners and tobacconists group, where American shops are now mostly specialist establishments catering for a luxury demand. In the general group, the popularity and relative ubiquitousness of this

When the census figures are adjusted to obtain a statistically valid comparison, it appears that the total number of shops in relation to the population was practically the same in Great Britain in 1950, in the United States in 1948 and in Canada in 1951.[1]

TABLE II

Great Britain, the United States and Canada: Retail and Service Trades—Population in Relation to Total Number of Shops [1]

	Number of people per shop.
Great Britain (1950)	74
United States (1948)	74
Canada (1951)	81

Sources: Numbers of shops: Same as Table I.
Population: British *Census of Distribution and Other Services*, 1950, Vol. I, Table 1.
Statistical Abstract of the United States, 1953, Table 9.
Canadian Statistical Review, July 1952, p. v.

[1] See Table I, note 1.

The first impression of a high degree of similarity of conditions in the three countries disappears as soon as attention is shifted from consideration of the total number of shops to the numbers in individual trade groups. These show marked variations.

It can be seen from Table III that in four out of the five trades in which Great Britain has relatively more shops than the United States the average number of shops in Great Britain is some two or three times as great as it is in the United States, and that in six out of the twelve trades in which Great Britain has relatively fewer shops than the United States the difference in numbers is of the same order of magnitude.

3. In the absence of census data, numbers of shops are sometimes the main source of information accessible to the serious investigator of efficiency in the marketing structure, and public discussion seems often to be concentrated on the matter of numbers of shops. For these reasons, it is worth considering

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kind of business in America complicates comparability with corresponding establishments in Great Britain in some respects. In the grocery group, American shops now handle the great bulk of sales of meat, fish, poultry, fruit and vegetables, which, in this country, is mostly retailed by specialised shops enumerated in the " other food retailers " group. The consequences of complications of this kind are noted in what follows, as the context requires. In the food trades the difficulty can be overcome by grouping.

[1] If the definition of shops adopted were restricted to retail shops in the narrower sense, excluding service establishments, the figures would be as follows:

	Number of people per retail shop.	
	British definition.	United States definition.
Great Britain (1950)	92	82
U.S.A. (1948)	130	92
Canada (1951)	125	99

what use can be made of our data on numbers of shops taken by themselves.

A comparison of the numerical relationship of shops to the size of the population cannot, in itself, tell us anything about efficiency in distribution. But numbers of shops can legitimately be used as rough indicators of comparative productivity in distribution when there is reason to believe that the

TABLE III

Great Britain, the United States and Canada : Retail and Service Trades—Numbers of Shops in Relation to Population by Major Kind of Business Groups [1]

Kind of business by major groups of the British *Census of Distribution* (1950).	Number of shops per 10,000 population.			Quotient of relative numerousness of shops.			General characteristics of goods retailed.[8]
	Great Britain (1950).	U.S.A. (1948).	Canada (1951).	U.S.A./ Great Britain.	Canada/ Great Britain.	U.S.A./ Canada.	
I–II. Grocery group and other food retailers	52·2	36·1	36·4	0·69	0·70	0·99	Necessaries
III. Confectioners, tobacconists and newsagents	13·5	3·7	8·3	0·27	0·61	0·45	Necessaries [9]
IV. Clothing group [4]	18·2	10·2	14·4	0·56	0·79	0·71	Intermediate
V. Hardware group	6·2	5·2	5·5	0·85	0·89	0·95	Luxuries
VI. Booksellers and stationers	1·9	0·5	0·5	0·26	0·26	1·00	Luxuries
VII. Chemists' goods and photographic goods group	3·4	4·0	3·4	1·18	1·00	1·18	Intermediate
VIII. Furniture group	3·3	4·1	2·2	1·24	0·67	1·86	Luxuries
IX. Jewellery, leather and sports goods group	2·8	2·9	2·9	1·04	1·04	1·00	Luxuries
X. General group [5]	0·3	1·6	1·5	5·33	5·00	1·07	Intermediate
XI. Coal, builders' materials and corn group	4·1	5·3	2·8	1·29	0·68	1·89	(Not consumers' goods)
XII. Other non-food retailers	2·3	3·5	2·4	1·52	1·04	1·46	Luxuries
XIII. Catering group [6]	9·2	13·3	10·0	1·45	1·09	1·33	Luxuries
XIV. Hairdressers	6·1	11·6	9·1	1·90	1·49	1·27	Luxuries
XV. Funeral furnishers	0·7	1·3	0·8	1·86	1·14	1·63	Intermediate
XVI. Portrait photographers	0·5	0·8	0·8	1·60	1·60	1·00	Luxuries
XVII. Repairers group	4·6	6·3	5·4	1·37	1·17	1·17	Luxuries
XVIII–XIX. Motor vehicle dealers and repairers, cycles, accessories and garages group	5·9	24·9	16·9	4·22	2·86	1·47	Luxuries [7]
TOTAL	135·4 [8]	135·2 [8]	123·1 [8]	1·00	0·91	1·10	

Sources: Same as Tables I and II.

[1] See Table I, note 1.
[2] Based on data of expenditure elasticities of demand, given in H. S. Houthakker, "The Econometrics of Family Budgets," *Journal of the Royal Statistical Society*, 1952, Pt. I; and on data of "income sensitivity of consumption expenditures," given in C. Winston and M. A. Smith, "Income Sensitivity of Consumption Expenditures," *Survey of Current Business*, January 1950.
[3] Luxuries in the United States. See text, footnote 1, p. 73.
[4] Including "other general stores."
[5] Department and variety stores only.
[6] Excluding canteens.
[7] Intermediate in the United States and Canada.
[8] Total not equal to sum of detail because of rounding.

relative number of shops provides some indication of the comparative inputs employed in performing comparable volumes of distributive outputs. Thus, Table III shows that there are more shops per head in Great Britain than in the United States in the food trades, the confectioners, tobacconists and newsagents group, the clothing group, hardware group, and in bookselling and stationery. Three conditions must be fulfilled before we can conclude from this that productivity in distribution is higher in these trades in the United States. The first is that the quantity and quality of distributive

output [1] in these trades must be at least as large, on a *per capita* basis, in the United States as in Great Britain. If this is so, it will then follow that the average size of shops as measured by their output, is larger in the United States. This, in turn, will imply that productivity is higher in the United States if, and only if, the two further conditions are also fulfilled that there are economies of scale by size of outlet in distribution, and that the influence of these economies outweighs the influence of all other forces which might lower United States productivity relatively to British.

Real *per capita* income and consumption are known to be about twice as large in North America as in Great Britain, and the aggregate output of the distributive trades in the United States and Canada may be expected to exceed that of Great Britain in roughly the same proportion. Moreover, as the scope of the seventeen trades distinguished in Table III is in each case wide enough to exclude the possibility of their sales being dominated by "inferior goods," it also seems likely that the *per capita* output of each major kind of business will be larger in North America than in Great Britain. This would immediately imply that in the five trade groups where Great Britain has relatively more shops, the corresponding American shops are larger.[2] We cannot, however, infer that British shops are likely to be larger in the fourteen trades for which Table III shows relatively fewer shops in this country. For it is a striking feature of Table III that the trades in which Great Britain has relatively fewer shops are mostly the trades selling luxuries. It may be expected that higher North American incomes will result in the output of these trades, as measured by the volume of their sales, exceeding that of their British counterparts by a particularly large margin.

[1] The choice of a suitable measure of the output of retail trade is difficult. We would like, in principle, to measure the real quantity of the services performed by the retail trade where all distributive functions performed in retail and service enterprises are included in the term "retail service." In fact, we measure retail output by real value of retail sales. The quantity of retail services rendered in the sale of a given value of merchandise is variable, particularly in regard to some types of service, *e.g.*, credit, delivery, display, variety of stock held, quality of premises and personnel services rendered. Furthermore, some functions normally associated with retailing may be taken over by wholesalers and manufacturers at one end and by consumers at the other end and conversely, *e.g.*, packaging, breaking bulk, stockholding. Our measures of comparative real sales volumes will not reflect the comparative output of retail distribution, in so far as there are important differences in these respects. In addition, there is no reason to suppose that the real quantity of retail services performed varies proportionally with the real value of merchandise sold. Consequently, we regard our measure as being of limited accuracy as an indicator of comparative output in distribution. This should be borne in mind when considering the absolute magnitudes shown in our tables. It should be noted that any attempt to measure the comparative output of retail trade by means of real net value added, apart from being of greater statistical difficulty, would inevitably also suffer from both the first and the third of the difficulties listed above, and would also fail to reflect differences in the extent to which consumers performed retailing functions. It would, however, reflect differences in the extent to which retailing functions were carried out at stages of the productive process earlier than retailing, or conversely.

[2] It is important to note that this inference will only be valid where tastes, and also the outlet-structure for different commodities, are broadly similar in Great Britain and North America.

Thus the relatively very low number of bookshops in the United States can be accounted for partly by geographical and demographic conditions which favour methods of book-distribution other than specialised bookshops, and partly by tastes: fewer people buy and read books in the United States than in Great Britain.

Cf. the *Times Literary Supplement*, September 17, 1954, p. lvi.

Thus, column 4 of Table III shows that there are over four times as many American shops as British engaged in some branch of automotive retailing. It may obviously be the case that the volume of American sales in these trades exceeds the British by an equivalent or greater margin. If so, American shops will be larger in this branch of distribution also, and the same may be true in the other luxury trades in which Great Britain has relatively fewer shops.

The fulfilment, in practice, of our second condition relating to economies of scale may be taken for granted,[1] at any rate over a wide range of sizes. We may, correspondingly, expect productivity in North American retail distribution to be superior in trades where their shops are significantly larger, other things being equal.

That other things should in fact be equal, or, if they are not, that the influence of other factors should not cancel the influence of economies of scale on comparative productivity, is our third condition. Empirical studies show that this is generally so within individual countries.[2] In the absence of any differences in Anglo-North-American conditions sufficient to raise relative British productivity so much as to counteract the American advantage associated with economies of scale, our third condition will be fulfilled.

We may conclude that our data on relative numbers of shops are suggestive in themselves, in that they provide *prima facie* support for the view that productivity is likely to be higher in North American than in British retail distribution, at least in the trades selling necessaries.

4. It is fortunate for the purposes of this inquiry that shortly after the publication of the first British census, a pioneer study of the comparative purchasing power of currencies was completed by Mr. Milton Gilbert and his associates at O.E.E.C. This makes it possible to use census data on sales to estimate the real volume of goods retailed in comparable branches of retail distribution in Britain and the United States.[3] The results are given below.

Table IV shows American real *per capita* sales to be higher than British in each trade group for which data are available, except one.[4] It can also

[1] See R. Bellamy, "Size and Success in Retail Distribution," *Bulletin of the Oxford University Institute of Statistics*, 1946, pp. 324 *et seq.*, and Colin Clark, *The Conditions of Economic Progress* (1st edition), pp. 334 *et seq.*

[2] R. Bellamy, *op. cit., passim.* Also: "It is a generally accepted principle that expenses in relation to sales decrease as the size of business increases" (*Eighth Census of Canada*, 1941, Vol. X, p. xl).

[3] See Milton Gilbert and Irving B. Kravis, *An International Comparison of National Products and the Purchasing Power of Currencies* (Paris: O.E.E.C.). The O.E.E.C. study did not embrace Canadian price data, but there is every reason to suppose that the results of an Anglo-Canadian comparison of real sales volumes would be very similar to those of our Anglo-United States comparison.

[4] This is the confectioners, tobacconists and newsagents group, where the specialist shop has been largely superseded in the United States (see footnote 1, page 73).

The comparative value of U.S. retail sales is understated in Table IV to the extent that the sales figures do not include the amount of local and States sales taxes or Federal excise taxes which are collected by the store for a local, State or Federal taxing agency. Gasoline, liquor, tobacco and other excise taxes which are paid by the manufacturer or wholesaler and passed along to the retailer are included. The British sales figures include Purchase Tax. The purchasing power equivalents relate to market prices.

TABLE IV

Great Britain and the United States: Retail and Service Trades—Estimated Volume of Sales by Major Kind of Business Groups [1]

Kind of business by major groups of the British *Census of Distribution* (1950).	Sales.		Purchasing-power equivalents (£ per $).		Estimated volume of U.S. sales (£ mn.).		Quotient of per capita sales volume, U.S.A./ Great Britain.		Quotient of relative numerousness of shops, U.S.A./ Great Britain.
	Great Britain (1950) £ mn.	U.S.A. (1948) $ mn.	U.S. quantity weights.	British quantity weights.	U.S. quantity weights.	British quantity weights.	British price weights.[2]	U.S. price weights.[2]	
I–II. Grocery group and other food retailers	2,088	34,055	0·243	0·189	8,275	6,436	1·33	1·03	0·69
III. Confectioners, tobacconists and newsagents	455	1,401	0·487	0·487	682	682	0·50	0·50	0·27
IV. Clothing group [3]	942	12,675	0·330	0·313	4,183	3,967	1·49	1·41	0·56
V. Hardware group	218	5,283	0·395	0·350	2,087	1,849	3·21	2·85	0·85
VI. Booksellers and stationers	68	555	0·547	0·387	304	215	1·50	1·06	0·26
VII. Chemists' goods and photographic goods group	159	4,215	—[4]	—[4]	—[4]	—[4]	—[4]	—[4]	1·18
VIII. Furniture group	259	4,666	0·340	0·308	1,586	1,437	2·05	1·86	1·24
IX. Jewellery, leather and sports goods group	80	1,799	—[4]	—[4]	—[4]	—[4]	—[4]	—[4]	1·04
X. General group [5]	115	13,151	0·357	0·319	4,695	4,195	3·80	3·39	5·33
XI. Coal, builders' materials and corn group	186	10,541	0·260	0·288	2,741	3,036	4·94	5·48	1·29
XII. Other non-food retailers	53	2,322	—[4]	—[4]	—[4]	—[4]	—[4]	—[4]	1·52
XIII. Catering group [6]	193	6,468	—[4]	—[4]	—[4]	—[4]	—[4]	—[4]	1·45
XIV. Hairdressers	34	845	0·157	0·189	133	160	1·31	1·58	1·90
XV. Funeral furnishers	13	572	—[4]	—[4]	—[4]	—[4]	—[4]	—[4]	1·86
XVI. Portrait photographers	4	147	—[4]	—[4]	—[4]	—[4]	—[4]	—[4]	1·60
XVII. Repairers group	25	731	—[4]	—[4]	—[4]	—[4]	—[4]	—[4]	1·37
XVIII–XIX. Motor vehicle dealers and repairers, cycles, accessories and garages group	546	27,878	0·576	0·464	16,058	12,935	9·87	7·95	4·22
TOTAL	5,738	127,306 [7]	0·359	0·294	45,703	37,428	2·67	2·19	1·00

Sources: Sales and Population: Same as Tables I and II.
Purchasing-power Equivalents: Basic data from O.E.E.C. Adjustment factors 1950/1948 from Bureau of Labor Statistics, Washington, D.C.
Weights for commodity composition of sales: United States *Census of Business*, 1948, Vol. II, Chapters 16–24 and *Census of Distribution and Other Services*, 1950, Vol. II, Tables 4 and 23.

[1] See Table I, note 1.

[2] Column (7) is based on British weights, since $P_u Q_u \cdot \frac{P_b Q_u}{P_u Q_u} \cdot \frac{1}{P_b Q_b} \cdot \frac{\text{Population U.S.}}{\text{Population G.B.}} = \frac{P_b Q_u}{P_b Q_b}$ (per capita), and column (8) on U.S. weights, since $P_u Q_u \cdot \frac{P_b Q_b}{P_u Q_b} \cdot \frac{1}{P_b Q_b} \cdot \frac{\text{Population U.S.}}{\text{Population G.B.}} = \frac{P_u Q_u}{P_u Q_b}$ (per capita), where u stands for United States and b stands for Great Britain.

[3] Including "other general stores."

[4] Adequate purchasing power equivalent not available.

[5] Department and variety stores only.

be seen from columns 7–9 of this table that, in those trade groups where shops are relatively more numerous in the United States, the *per capita* volume of goods distributed is, with two exceptions, greater in an even higher proportion. This implies that shops in the United States are larger, on average, than in Great Britain in every major kind of business group except two, namely, the general group and hairdressing.[1] Moreover, one of these exceptions is merely statistical, and only goes to confirm the rule that shops are larger in the United States, as can be demonstrated by appropriate grouping of the data.[2]

Table V shows the actual values of real sales per store[3] and Table VI the volume of real sales per person engaged[4] by the major trade groups of the British census classification.

Taken in conjunction with each other, these tables show that the larger size of shops in the United States is in fact associated with higher productivity there, as measured by the partial index of real sales per person engaged. Moreover, the idea that the association is not merely an accidental one is strongly suggested by the fact that, as between the various trades, productivity in the United States is relatively higher where the difference in size of outlet is greater. The correlation coefficient in respect of the quotients of relative sales per shop and of relative sales per person engaged in the different major groups is 0·9.

If we adopt the assumption that higher labour productivity is associated with higher productivity in general, we can interpret the pattern of figures shown in Table III in the following general way: the influence of higher productivity in North American retailing has the effect of depressing the

[1] Examination of comparative *per capita* sales volumes in the seven trade groups in which estimated purchasing power equivalents were not accurate enough to be shown explicitly in Table IV makes it quite clear that shops are, on average, larger in the United States than in Great Britain in each of the trade groups concerned.

In the confectioners, tobacconists and newsagents group, while United States *per capita* consumption is lower, the relative number of shops is lower still than in Great Britain.

[2] There is a traditional inconsistency, in all three countries, in the principles of classification underlying the division of distributive establishments into major groups. Whereas the principle of classification in the case of all groups other than the general group relates to the kind of merchandise sold, the general group is shown separately by virtue of its distinctive principle of departmentalisation. It is possible to remove this inconsistency by grouping together all the trade groups which sell merchandise of the types retailed by department and variety stores. A calculation of relative real sales per shop for the specialist groups IV, V, VI, VIII and IX taken together shows these shops in the United States to be larger than the British in the ratio of 2·69 (British price weights). If the general group X is added, the ratio *rises* to 3·07, in spite of the that the fact average size of shop in the general group is smaller in the United States than in Great Britain. This apparently paradoxical result reflects the wider prevalence of department and variety stores in the United States, together with the fact that department and variety stores are typically much larger, in both countries, than the specialist shops selling similar merchandise. It also implies that a larger proportion of these goods is channelled through the larger type of outlet in the United States than in Great Britain.

[3] Examination of the frequency distributions of numbers of shops by sales size shows that the comparison of average sales per store given in Table V reflects actual differences in the typical sizes of shops in Great Britain and the United States.

[4] The figures we have used for persons engaged include working proprietors, unpaid family workers and paid employees. No allowance has been made for differences in the extent of part-time working, the length of the working week, and the age and sex composition of the labour force.

relative number of shops in America below the British level in a number of trades which sell staple commodities and where, in consequence, *per capita* consumption levels do not exceed the British by a very large margin. In other trades American consumption is so much higher that this outweighs the effect of higher American productivity and results in there being relatively more shops there than in Great Britain.

TABLE V

Great Britain and the United States: Retail and Service Trades—Average Real Sales Volume per Shop, by Major Kind of Business Groups [1]

Kind of business by major groups of the British *Census of Distribution* (1950)	Average £ sales per shop Great Britain (1950).	Estimated real value in £ of sales per shop, U.S.A. (1948).		Quotient of relative sales per shop, U.S.A./Great Britain.	
		U.S. quantity weights.	British quantity weights.	British price weights.	U.S. price weights.
I. Grocery group	9,051	14,837	13,270	1·64	1·47
II. Other food retailers	7,238	18,263	10,666	2·52	1·47
III. Confectioners, tobacconists and newsagents	6,863	12,582	12,582	1·83	1·83
IV. Clothing group [5]	10,560	28,028	26,581	2·65	2·52
V. Hardware group	7,224	27,346	24,227	3·79	3·35
VI. Booksellers and stationers	7,171	41,575	29,404	5·80	4·10
VII. Chemists' goods and photographic goods group	9,479	— [3]	— [3]	— [3]	— [3]
VIII. Furniture group	16,101	26,595	24,095	1·65	1·50
IX. Jewellery, leather and sports goods groups	5,720	— [3]	— [3]	— [3]	— [3]
X. General group [4]	287,636	206,011	184,072	0·72	0·64
XI. Coal, builders' materials and corn group	9,254	35,724	39,569	3·86	4·28
XII. Other non-food retailers	4,657	— [3]	— [3]	— [3]	— [3]
XIII. Catering group [5]	4,265	— [3]	— [3]	— [3]	— [3]
XIV. Hairdressers	1,151	787	946	0·68	0·82
XV. Funeral furnishers	3,851	— [3]	— [3]	— [3]	— [3]
XVI. Portrait photographers	1,871	— [3]	— [3]	— [3]	— [3]
XVII. Repairers group	1,090	— [3]	— [3]	— [3]	— [3]
XVIII–XIX. Motor vehicle dealers and repairers, cycles, accessories and garages group.	18,846	44,203	35,606	2·35	1·89
TOTAL	8,650	23,152	18,960	2·68	2·19

Sources: Same as Table IV.

[1] See Table I, note 1.
[3] No adequate purchasing-power equivalent available.
[4] Department and variety stores only.
[5] Excluding canteens.

5. Our analysis has shown that the larger size of outlets in the United States is associated with higher productivity there, and economies of scale may be regarded as one proximate cause of this. A distinction must, however, be made between economies of large scale which result from a greater average sales volume passing through individual retail outlets,[1] and the economies of large-scale organisation, the most important of which, in distribution, are those of large-scale buying. The latter are most commonly achieved by chain stores and co-operative societies, which unite a number of outlets under a single management, and the term large-scale retailing is often used to cover these forms of organisation. Table VII shows that, in this last sense, it is British retailing which is larger scale. In every kind of business group shown in the table, without exception, the chain and co-

[1] These are the economies of size of plant in distribution.

operative forms of organisation are more numerous and more important in terms of sales in Great Britain than in the United States. As in many other respects, the position in Canada, as regards chains, is intermediate between Great Britain and the United States.[1]

These figures certainly invite further investigation, since the rise of large-scale forms of organisation in retailing has generally been associated with the emergence of mass markets for consumer goods.[2] North America contains the largest mass markets in the world to-day, so that other factors in the situation are clearly also at work.

TABLE VI

Great Britain and the United States: Retail and Service Trades—Average Real Sales Volume per Person Engaged by Major Kind of Business Groups [1]

Kind of business by major groups of the British *Census of Distribution* (1950).	Average £ sales per person engaged, Great Britain (1950).	Estimated real value in £ of sales per person engaged, U.S.A. (1948).		Quotient of relative sales per person engaged, U.S.A./Great Britain.	
		U.S. quantity weights.	British quantity weights.	British price weights.	U.S. price weights
I. Grocery group	2,447	4,100	3,667	1·68	1·50
II. Other food retailers	1,909	4,564	2,665	2·39	1·40
III. Confectioners, tobacconists and newsagents	2,023	4,298	4,298	2·12	2·12
IV. Clothing group [3]	2,347	4,416	4,188	1·88	1·78
V. Hardware group	1,967	5,603	4,964	2·85	2·52
VI. Booksellers and stationers	1,318	5,707	4,036	4·33	3·06
VII. Chemists' goods and photographic goods group	1,929	— [3]	— [3]	— [3]	— [3]
VIII. Furniture group	2,863	4,756	4,309	1·66	1·51
IX. Jewellery, leather and sports goods groups	1,856	— [3]	— [3]	— [3]	— [3]
X. General group [4]	2,281	3,922	3,505	1·72	1·54
XI. Coal, builders' materials and corn group	2,269	5,532	6,127	2·44	2·70
XII. Other non-food retailers	1,409	— [3]	— [3]	— [3]	— [3]
XIII. Catering group [5]	724	— [3]	— [3]	— [3]	— [3]
XIV. Hairdressers	453	— [6]	— [6]	— [6]	— [6]
XV. Funeral furnishers	1,071	— [3, 6]	— [3, 6]	— [3, 6]	— [3, 6]
XVI. Portrait photographers	506	— [3, 6]	— [3, 6]	— [3, 6]	— [3, 6]
XVII. Repairers group	556	— [3, 6]	— [3, 6]	— [3, 6]	— [3, 6]
XVIII–XIX. Motor vehicle dealers and repairers, cycles, accessories and garages group.	2,740	— [6]	— [6]	— [6]	— [6]
TOTAL	1,998	—	—	—	—
TOTAL, RETAIL TRADE ONLY	2,173	4,439	4,076	2·04	1·88

Sources: Same as Table IV.

[1] See Table I, note 1.
[2] No adequate purchasing-power equivalent available.
[3] Excluding canteens.
[4] Including "other general stores."
[5] Department and variety stores only.
[6] Available data do not include unpaid family workers.

6. If the pattern of numbers of shops revealed by our Anglo-American comparisons is of general significance, then we should expect to find it in evidence in inter-regional comparisons wherever the regions differ in their levels of real income and productivity in distribution but are otherwise comparable. We made such an analysis primarily as a check on the results of our international comparisons. We used data on numbers of shops given in the 1948 United States census for forty-eight states and the District of

[1] *Eighth Census of Canada*, 1941, Vol. X, Table 13.
[2] For an exhaustive discussion of the historical growth of large-scale organisation in British retailing, see J. B. Jeffreys, *Retail Trading in Britain, 1850–1950*, Cambridge University Press, 1954, *passim*, and especially pp. 119–20.

Columbia in conjunction with official estimates of *per capita* income in these regions.

As can be seen from Table VIII, we found a significant correlation between relative numbers of shops and income in twelve out of our eighteen

TABLE VII

The Structure of the Retail Trades in Great Britain (1950) and the United States (1948), Distinguishing Single Units and Chains of Various Sizes by Major Kind of Business Groups [1]

Major group Nos.[2]	1 Establishment.		2–9 [3] Establishments.		10–24 [3] Establishments.		25–49 [3] Establishments.		50–99 [3] Establishments.		100 [3] Establishments and over.		Co-operatives (Great Britain only).	
	% of no. of estabs.	% of sales.	% of no. of estabs.	% of sales.	% of no. of estabs.	% of sales.	% of no. of estabs.	% of sales.	% of no. of estabs.	% of sales.	% of no. of estabs.	% of sales.	% of no. of estabs.	% of sales.
I.														
G.B.	73·1	42·7	5·9	8·9	1·8	3·4	1·5	2·8	1·7	2·8	7·1	13·8	8·8	25·6
U.S.	91·5	58·9	2·4	7·4	0·6	3·4	0·5	2·4	0·4	2·0	4·6	25·6	—	—
II.														
G.B.	66·6	52·7	17·7	21·0	2·7	4·9	1·2	2·0	1·4	2·4	3·4	5·6	7·0	11·4
U.S.	92·0	76·9	4·7	8·3	0·8	—	0·5	×	0·4	×	1·5	×	—	—
III.														
G.B.	84·3	74·2	7·7	12·7	1·3	2·5	1·0	2·0	0·8	1·6	4·6	6·3	0·2	0·7
U.S.	88·2	73·3	3·5	8·5	1·6	—	1·5	×	0·7	×	4·5	×	—	—
IV.														
G.B.	63·3	40·1	19·7	20·0	2·7	6·9	1·8	4·4	2·3	4·0	7·0	18·3	3·3	6·3
U.S.	79·9	58·9	11·4	18·5	2·2	5·7	1·3	3·2	2·0	4·0	3·1	9·8	—	—
V.														
G.B.	70·1	55·1	16·5	17·8	1·1	2·0	1·1	2·0	3·8	9·0	6·3	12·4	1·1	1·8
U.S.	88·2	76·3	5·6	9·9	1·2	—	1·2	×	1·2	×	2·5	×	—	—
VI.														
G.B.	75·1	58·4	11·3	16·9	1·0	3·0	1·2	2·0	—	—	11·3	19·6	0·1	0·6
U.S.	89·7	72·4	6·5	12·9	1·5	5·7	0·9	×	1·5	×	—	—	—	—
VII.														
G.B.	62·9	44·3	15·9	15·2	1·7	1·8			13·6	32·7			5·9	6·1
U.S.	89·2	72·3	5·9	10·1	0·8	2·2	0·9	2·8	0·8	2·9	2·5	9·7	—	—
VIII.														
G.B.	66·6	45·7	23·8	25·2	2·7	7·4	0·9	3·6	3·0	11·9			3·0	6·3
U.S.	89·9	74·7	8·6	19·4	0·5	×	0·2	×	0·3	×	0·4	×	—	—
IX.														
G.B.	74·9	62·7	19·7	24·5					4·9	12·0			0·5	0·9
U.S.	90·3	78·2	8·6	17·0	1·0	×	0·1	×	—	—	—	—	—	—
X.														
G.B.	14·1	35·6	8·3	21·5	4·6	3·2	7·8	6·3	54·7	22·7			10·6	10·6
U.S.	54·3	32·2	11·4	18·1	2·6	6·7	2·8	1·3	2·0	1·1	27·0	40·5	—	—
XI.														
G.B.	77·8	58·8	9·0	12·7	3·3	6·0			4·7	10·2			5·2	12·3
U.S.	83·5	74·1	9·4	16·0	2·2	3·0	1·6	×	1·8	×	1·5	×	—	—
XIII.														
G.B.	83·0	64·7	6·6	10·4	1·6	3·7	1·4	2·5	1·0	1·8	6·0	16·1	0·4	0·8
U.S.	94·6	83·6	3·3	8·4	0·6	2·3	0·3	2·2	0·6	×	0·5	×	—	—
XVIII–XIX.														
G.B.	84·1	65·4	12·6	27·6	0·9	4·4			2·4	2·6			—	—
U.S.	94·2	89·2	3·2	7·5	0·4	0·7	0·3	0·2	0·4	0·3	1·6	2·0	—	—
TOTAL.														
G.B.	72·5	50·1	12·8	17·3					10·1	21·9			4·6	10·7
U.S.	89·9	68·7	4·9	11·4	1·0	×	0·6	×	0·7	×	2·8	×	—	—

Sources: British *Census of Distribution and Other Services*, 1950, Vol. II, Table 8, and United States *Census of Business*, 1948, Vol. I, Table 3A.

[1] See Table I, note 1. While the procedure used for allocating establishments to organisations controlling chains of different sizes is nominally different in the British and the United States censuses, the effect of this is negligible in practice.

[2] Data for Groups XII, XIV–XVII not available in the United States census. Figures shown in groups I, II, IV, V, VII–XI, XVIII and XIX are subject to slight errors which result from the necessity of omitting certain sub-groups from the comparisons owing to grouping and non-disclosure in the basic census data.

[3] 2–10, 11–25, 26–50, 51–100, 101 establishments and over in United States census.

trade groups. It can also be seen from column 3 of this table that numbers of shops generally increase more sharply with income in the trades selling luxuries than in other trades. This may be regarded as confirming the interpretation we gave of the pattern of numbers of shops in luxury trades in our Anglo-North American comparisons (see Table III).

It is noteworthy that the correlation was positive in all cases except in the food trades, which, in terms of our analysis, suggests that the income factor was dominant over a wider range of trades within the United States than in our Anglo-North American international comparisons. This may be explained by the existence of wide variations in regional incomes in the United States, while the level of productivity in distribution did not,

TABLE VIII

United States (1948) : Numbers of Shops per 10,000 Population in Relation to an Index[1] *of* per capita *Income in Forty-eight States and the District of Columbia*[2]

Kind of business by major groups of the British *Census of Distribution* (1950)	Correlation coefficients[3]	Regression coefficients.	Regression coefficients as % of no. of shops/10,000 population in U.S.A.	General characteristics of goods retailed.[4]
I. Grocery group II. Other food retailers	−0·58	−0·2076	−0·6	Necessaries
III. Confectioners, tobacconists and newsagents	0·55	0·0567	1·5	Luxuries
IV. Clothing group	0·51	0·0538	0·5	Intermediate
V. Hardware group	0·44	0·0504	1·0	Luxuries
VI. Booksellers and stationers	0·68	0·0073	1·5	Luxuries
VII. Chemists' goods and photographic goods group	0·51	0·0195	0·5	Intermediate
VIII. Furniture group	0·27	0·0119	0·3	Luxuries
IX. Jewellery, leather and sports goods group	0·51	0·0276	0·9	Luxuries
X. General group	0·16	0·0028	0·2	Intermediate
XI. Coal, builders' materials and corn group	0·29	0·0326	0·6	(Not consumers' goods)
XII. Other non-food retailers	0·52	0·0306	0·9	Luxuries
XIII. Catering group	0·27	0·0326	0·2	Luxuries
XIV. Hairdressers	0·70	0·0795	0·7	Luxuries
XV. Funeral furnishers	0·18	0·0033	0·3	Intermediate
XVI. Portrait photographers	0·62	0·0064	0·8	Luxuries
XVII. Repairers group	0·66	0·1013	1·1	Luxuries
XVIII. Motor vehicles, cycles and accessories group	0·18	0·0200	0·3	Luxuries
XIX. Motor vehicle repairers and garages group	0·15	0·0375	0·2	Intermediate
A. Trades selling necessaries	−0·58	−0·2076	−0·6	
B. Trades selling intermediate goods	0·37	0·1172	0·3	
C. Trades selling luxuries	0·74	0·4232	0·7	

Sources: United States *Census of Business*, 1948, Vol. III and Vol. VII, and *Statistical Abstract of the United States*, 1951, p. 264.

[1] *I.e., per capita* income in each of the forty-eight states and the District of Columbia, expressed as a percentage of per *capita* income in the United States as a whole. [2] See Table I, note 1.

[3] The 5 and 1% levels of significance of r with 47 degrees of freedom are 0·28 and 0·36 respectively.

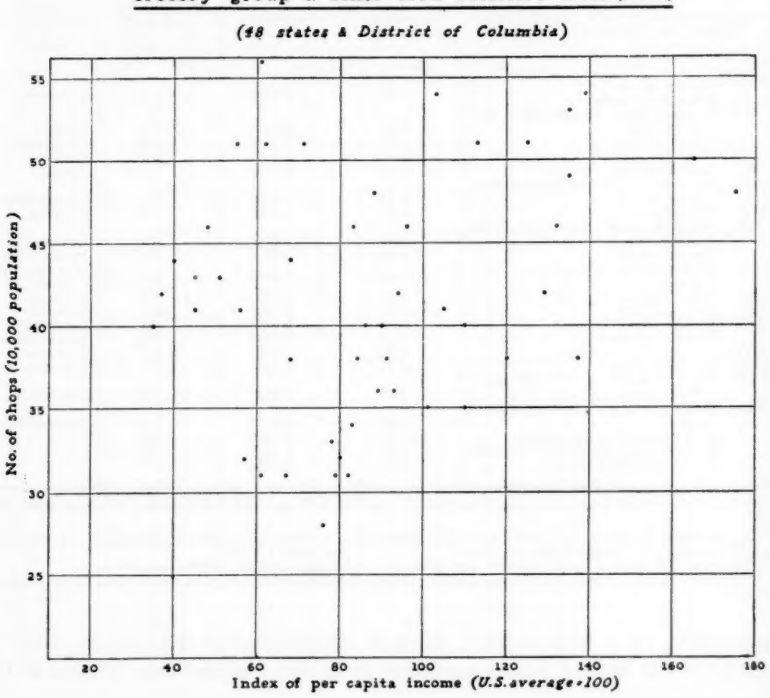
[4] Based on expenditure elasticities of demand, and " income sensitivity of consumption expenditures "; see Table III, note 2.

apparently, vary with income in such a pronounced manner in different regions of the United States economy as in our international comparisons.[1]

[1] In principle, the wider area of dominance of the income factor in the United States inter-regional comparison may be explained either by the existence of wider variations in incomes within the United States than in the Anglo-United States comparison, or by lesser variations in productivity with given income differences. As the range of income variation is similar in the inter-regional and the international comparisons, it follows that, generally, productivity in distribution varies less within the United States than between the United States and Great Britain.

It will be noticed that here, and throughout the remainder of this article, we postulate the existence of a connection, at a given level of income, between relative numbers of shops and size of shops, as well as between size of shops and productivity. It seems justifiable to do this as a first approximation, since the conditions which must be fulfilled for this procedure to be valid were found to be realised in our international comparison, and this may be expected to be so *a fortiori* in our inter-regional comparison.

It is most striking that in the food trades, where it is likely that productivity in distribution now varies very greatly according to the length to which the technical revolution associated with self-service and super-markets has gone, the effect of productivity on numbers of shops is found to be predominant. The power of the impact of the self-service revolution is indicated by the fact that in 1929, before the change-over to self-service had gone at all far, no significant correlation existed between numbers of shops in the food trades and income in the forty-eight states and the District of Columbia.[1] The contrast between the position in the food trades in 1929 and in 1948 is shown in the following scatter-diagrams:

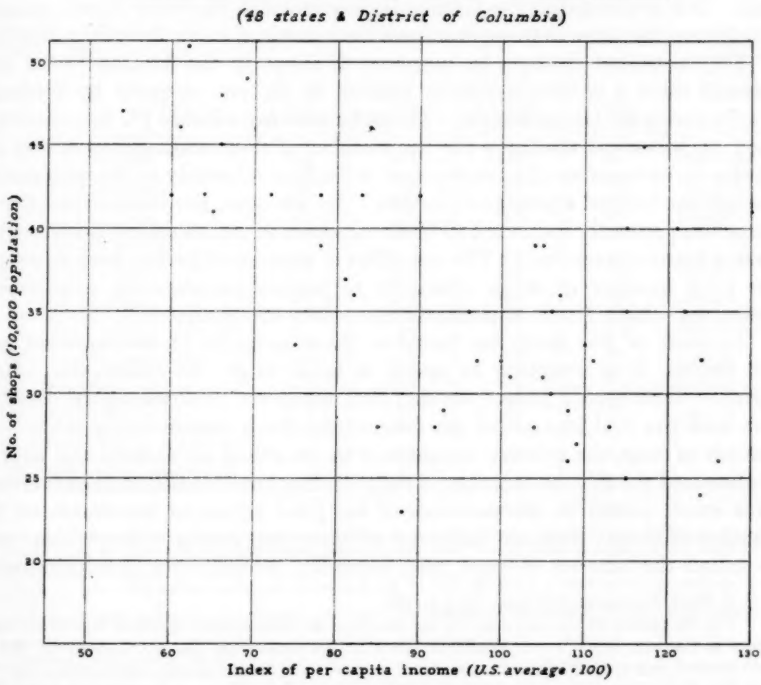


The strong negative correlation shown for the food trades in 1948 indicates that high productivity in food distribution is now found in the regions of highest income in the United States, so that the inter-regional comparisons in this trade afford a complete parallel to the findings of our international comparison in regard to trades selling staple products.

[1] The interpretation of this may be either that neither *per capita* sales of food nor productivity in distribution varied significantly with income in 1929, or that the influence of higher income on numbers of shops *via* higher food sales was offset by higher productivity in distribution in the richer states.

7. Historical data on numbers of shops can be interpreted in a similar manner. There are no British census data before 1950, but Professor Ford has done pioneer work in this field on data obtained from directories, and Mr. Henry Smith has employed the same method of obtaining data on numbers of shops.[1]

Professor Ford showed that in his sample of twelve "typical" British towns, practically no change had occurred in the total number of retail shops of all kinds [2] relatively to population between the years 1901 and 1931. However, this constancy, through time, of the total number of shops in relation to population was found to disguise widely divergent developments



in different trades. In one group of trades, in which the various categories of distributors of such staple commodities as food and clothing accounted

[1] See P. Ford, "Competitition and the Number of Retail Shops, 1901–1931," Economic Journal, 1935, pp. 501 *et seq.*; also Note on "Changes in the Number of Shops, 1901–1931," Economic Journal, 1936, pp. 359 *et seq.*; and P. Ford and C. V. White, *Trends in Retail Distribution in Yorkshire (West Riding), 1901–1927*, (Manchester School, 1936), pp. 119 *et seq.*; also Henry Smith, *Retail Distribution* (2nd Edition), Chapter III.

[2] Certain service trades were excluded from the scope of Professor Ford's study, *e.g.*, hairdressers. On the other hand, he included photographers and fried fish shops. See Economic Journal, 1935, pp. 505 and 507.

for a large proportion of the number of shops, significant declines had occurred in the numbers of shops relatively to population. In others, some striking increases had occurred in the relative numbers of shops, on a scale sufficient to keep the total for all trades at a constant figure.

Professor Ford's interpretation of these results was to suggest that the total number of shops had been held down, in spite of factors, such as the growth of new shopping centres, tending to increase them, by the economies of "massive retailing," *i.e.*, by increased productivity in distribution.[1] The decline in the relative number of shops in trade groups selling staple articles of consumption should, he implied, be attributed to this. On the other hand, where an increase in the relative number of shops had occurred, this could, in many cases, be accounted for by rising standards of consumption. It is evident that the factors distinguished in Professor Ford's pioneer articles are the same as those that have been invoked in the foregoing analysis.

The historical changes in numbers of shops in the United States and Canada show a strikingly similar pattern to the one revealed by Professor Ford's results for Great Britain. It can be seen from Table IX that there has been an historical tendency for the number of shops engaged in selling the staples or necessaries of consumption to decline relatively to the population in both the United States and Canada. By contrast, the relative number of shops has generally increased in both countries in trades selling goods which have a luxury character.[2] The net effect of these changes has been to reduce the total number of shops relatively to population over the twenty-year period for which North American census data are available.[3]

In view of the similarity between these patterns of development and the British, it is tempting to speak of what might be called the "Ford effect." This would reflect the fact that wherever productivity in distribution and the real income of the community both increase over fairly long periods of time, the relative numbers of shops selling necessaries will tend to decline and the relative number of shops selling luxuries will tend to increase. This result would be the outcome of the joint action of two forces on the number of shops; first, the influence of increasing productivity, which tends to reduce the number of shops, and, secondly, the influence of the increasing

[1] P. Ford, ECONOMIC JOURNAL, 1935, p. 506.

[2] The exceptions to this in Table IX are mostly in the comparative figures in respect of service trades in Canada, 1930–51. It should be noted in this connection that the Canadian census of 1941 stressed that the 1930 figures in respect of service trades are not always comparable with later data (see *Eighth Census of Canada*, 1941, Vol. XI, p. 388). In addition, it is possible that the 1930 census results were already affected by the influence of depression, which tends to lead to a cyclical inflation of numbers of shops in some service trades, as well as in some other kinds of business groups. There is ample evidence of this effect in the United States censuses for the years 1933, 1935 and 1939. We have decided to avoid consideration of this material in the present article, since we are not here concerned with the influence of short-period factors on the distributive trades.

An example of an exception of a different type is afforded by the decline in the relative number of bookshops in the United States between 1929 and 1948. This is no doubt due to a change in the channels of distribution. Exceptions of this kind were noted in Professor Ford's articles, and do not refute his general thesis (see P. Ford, *ibid.*, p. 508).

[3] Unfortunately, no data are available for comparing this trend with British experience over the same period.

scale of real consumption as income rises, which tends to raise the number of shops. Both these forces operate on all trade groups, but the influence of increased real consumption on numbers of shops will be asymmetrical because of the tendency for a diminishing proportion of income to be spent on necessaries as income increases. Consequently it is possible for the net result of the operation of the two forces we have distinguished to be consistent

TABLE IX

United States and Canada: Retail and Service Trades—Historical Changes in Numbers of Shops Relatively to Population, by Major Kind of Business Groups [1]

(United States, 1929 and 1948; Canada, 1930 and 1951)

Kind of business by major groups of the British *Census of Distribution* (1950). / Year: Population:	Number of shops per 10,000 population.				General characteristics of goods retailed.[2]
	U.S.A.		Canada.		
	1929. 121,770,000.	1948. 146,045,000.	1930. 10,208,000.	1951. 14,009,429.	
I–II. Grocery group and other food retailers	42·9	36·1	46·6 [3]	36·4	Necessaries
III. Confectioners, tobacconists and newsagents	8·8	3·7	11·7	8·3	Necessaries [4]
IV. Clothing group [5]	12·7	10·2	13·3	14·4	Intermediate
V. Hardware group	4·6	5·2	4·8	5·5	Luxuries
VI. Booksellers and stationers	0·6	0·5	0·4	0·5	Luxuries
VII. Chemists' goods and photographic goods group	4·8	4·0	3·5	3·2	Intermediate
VIII. Furniture group	3·3	4·1	1·9	2·2	Luxuries
IX. Jewellery, leather and sports goods group	2·3	2·9	2·0	2·9	Luxuries
X. General group [6]	1·3	1·6	0·6	1·5	Intermediate
XI. Coal, builders' materials and corn group	7·0	5·3	4·5	2·8	(Not consumers' goods)
XII. Other non-food retailers	4·5	3·5	3·1	2·4	Luxuries
XIII. Catering group [7]	11·0	13·3	5·5	10·0	Luxuries
XIV. Hairdressers	— [8]	11·6	9·9	9·1	Luxuries
XV. Funeral furnishers	— [8]	1·3	0·8	0·8	Intermediate
XVI. Portrait photographers	— [8]	0·8	0·7	0·8	Luxuries
XVII. Repairers group	— [8]	6·3	6·1	5·4	Luxuries
XVIII. Motor vehicles, cycles and accessories group	5·9	6·1	3·6	4·8	Luxuries
XIX. Motor vehicle repairers and garages group	— [8]	18·8	11·2	12·1	Luxuries [4]
TOTAL	—	135·2 [9]	130·2	123·1	

Sources: Same as Tables I and II; also *Seventh Census of Canada*, 1931, Vol. X, Table 1A, and Vol. XI, Table 1A.

[1] See Table I, note 1.
[2] Based on data of expenditure elasticities of demand and "income-sensitivity of consumption expenditure"; see Table III, note 2.
[3] Includes itinerant operators. The direction of change in the relative number of shops, 1930–51, is not affected by this.
[4] At earlier date.
[5] Including "other general stores."
[6] Department and variety stores only.
[7] Excluding canteens.
[8] Not covered in 1929 census.
[9] Total not equal to sum of detail because of rounding.

with our own and Professor Ford's findings for Great Britain, the United States and Canada, even when the increase in productivity bears uniformly on all trades and, *a fortiori*, if there is a tendency for the increase in productivity to be larger in trades retailing staple articles of consumption. The results of our international and inter-regional comparisons of numbers of shops show that the Ford-effect may be detected in inter-spatial as well as in historical comparisons.

8. We have not attempted, in this article, to define the fundamental determinants which account for the differences in productivity indicated by our Anglo-North American comparisons, or the circumstances in which higher productivity in retail trade will result in lower retail prices. We are making a more detailed examination of the particular circumstances in which productivity differences have occurred, and this may be expected to throw light on these matters, as well as on the vexed question of efficiency in distribution.

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THE EFFECTS OF MAINTAINED CONSUMPTION IN THE UNEMPLOYED SECTOR

1. The Explicit Use of Unemployment in Our Analysis

In the early empirical work on consumption or saving function it was generally assumed either that the function was fixed apart from a disturbance term or that it shifted in a regular manner through time. In recent years,[1] however, mainly through the work of Modigliani [2] and Duesenberry,[3] it has come to be realised that less obvious types of shift are essential for a satisfactory description of the relationship over time of aggregate consumption to income. Thus in Modigliani's study just referred to a linear per head consumption relationship expressed in real terms is shifted about by reference to the highest level of real income per head previously attained. This takes into account unemployment indirectly, but gives up the heuristic advantages of its explicit use.

The author had already introduced the hypothesis regarding the impact of unemployment on consumption and savings in his investigations of changes in savings deposits in Czechoslovakia during the thirties. The advantages of this straightforward approach do not diminish with the lapse of time. This hypothesis starts each year from scratch, and is thus free from any danger of errors that might accumulate by reference to changes in the estimates for the preceding years. At the same time it leaves the way open for appreciation of some special factors relevant to the interpretation of saving in a given year. In comparison with the more recent approach of Modigliani the following points deserve attention:

(1) The real income is a synthesis of many components, some of which may influence the level of national saving in a manner different from the changes in the degree of employment of the economy. The growing productivity may raise the real income in the employed sector by, say, 2 or 3% annually, and at the same time unemployment may rise, so that there will be no visible change in the total real income, though there will be a substantial fall in net national saving, due to the specific behaviour of the unemployed sector. Changing conditions of international trade, irregular crops, etc., may produce similar divergent movements.

(2) The deflating of national income figures may not always be the safest step to an evaluation of the size of the unemployed sector with its

[1] R. Stone, *Model Building and the Social Accounts*. A Survey prepared for the Conference of the International Association for Research in Income and Wealth in Castelgandolfo.

[2] F. Modigliani, "Fluctuation in the Saving–Income Ratio: A Problem in Economic Forecasting" (in *Studies in Income and Wealth*, Vol. 11. New York, 1949).

[3] J. S. Duesenberry, *Income, Saving and the Theory of Consumer Behaviour*. Harvard University Press, 1949.

special behaviour. This can be better measured, in most cases, by more direct and usually more readily available information.

(3) The explicit use of unemployment makes it possible to examine the consistency of available estimates of national income and savings in the light of information independent of the estimates themselves.

(4) The hypothesis relating the unemployed sector to full-employment income also makes possible an evaluation of net capital formation in an environment for which estimates of national income in absolute figures are not yet available.

On the other hand, the newer approach of Modigliani has the merit that it can deal with situations in which statistics of unemployment cannot be relied upon as an indicator of the size of the unemployed sector, but in which the estimates of national income are available.

First the paper will show the advantages of an explicit recognition of the unemployed sector in a discussion on the most general level. The second part will test our hypothesis on statistics from the inter-war period, which has the technical advantage that it includes years with a widely changing degree of unemployment, but with conditions otherwise fairly comparable.

The separation of the behaviour of the unemployed sector will help us to view the distinctly long-term nature of the propensity to save with the same assurance as was assumed in the early writings on the subject.

2. Characteristics of the Unemployed Sector

The term " unemployed sector " has been chosen to emphasise that this factor is conceived here in the widest sense. Unemployment figures provide a clearly visible indicator of changes in the overall intensity of business activity, the practical consequences of which make themselves felt in all aspects of the economic system.

The pattern of the unemployed sector is taken as a microcosm of the whole economy under conditions of full employment of both men and assets: the pattern of trades in the unemployed sector is assumed to be the same as that of the whole economy; the average income and the distribution of incomes between factors under " normal " conditions (full employment) are also the same in the unemployed sector as in the whole economy; the same is true of consumption habits, savings, etc. However, so far as actual behaviour is concerned, the unemployed sector is not a simple microcosm of the whole under " normal " conditions. The changed conditions impose on the unemployed sector quite specific modes of behaviour, modifying the tendencies from the " normal " pattern. The specific characteristics of the unemployed sector are assumed to be elements of an independent origin and temporary nature superimposed on a long-term pattern of " normal " behaviour of the whole economy.

3. The " Resistance of Consumption " Defined

The effects of the " normal " pattern of behaviour combined with the specific elements of the situation in the unemployed sector are summarised

primarily in the behaviour of the whole unemployed sector (comprising men and assets) as consumer. Though the unemployed sector has discontinued its contributions to the national production, it does not discontinue its participation in national consumption. The cost of inevitable maintenance and accrued obsolescence of idle assets have lost their cover in the gross product of the now unemployed sector, and emerge now as part of the consumption taking place in the unemployed part of the economy. It is a commonplace that the continuity of consumption is not a simple extension of consumers' behaviour under " normal " conditions, but shows substantial modifications in many of its features, and these again change in association with a number of factors. In this paper the accumulated results of all these specific factors modifying the " normal " pattern of consumers' behaviour will be subsumed under the term " resistance of consumption " in the unemployed sector. The term " resistance of consumption " has been chosen to express the specific set of conditions forming this particular case of elasticity of consumption, and its coefficient will be measured as a percentage of the full-employment income.

The author used the hypothesis of the special behaviour of the unemployed sector for the first time when he was faced with the task of interpreting the association in different regions of changes in savings deposits with the unemployment observed during the thirties (1928–35). In each of the analysed years, districts with unemployment near to 8% were districts with zero net changes in savings deposits. The " normal " saving having the liquid form of savings deposits could then be put at some 4% of full-employment incomes, and the main weight of dissaving rested on this relatively liquid form of assets. Thus a conclusion was suggested that the consumption in the unemployed sector must have been reduced to about one-half of the full-employment standard.[1]

In the recently published *Saving in the Modern Economy*, R. W. Goldsmith summarises his examination of savings in the last fifty years in the formula [2]:

$$\frac{\text{Personal saving}}{\text{Personal disposable income}} = 0{\cdot}15 + \frac{\text{Actual employment} - \text{Normal labour force}}{\text{Normal labour force}}$$

As Goldsmith points out, the formula was not intended to reproduce small year-to-year variations. He seems disappointed to find that the formula yielded values too low in the period between the Great Depression and the Second World War, and leaves open the question whether this is because of

[1] K. Maiwald, *Hospodářský život a úvěr*. Prague, 1937, p. 146. Translated in simple terms, the analysis has been summarised into a simple rule: There must be about twelve men under conditions of full employment to outbalance by their savings the dissaving caused by unemployment of one man, or, that one month of unemployment swallows about one year's saving deposits. See Table IV on p. 98.

[2] R. W. Goldsmith, " Trends and Structural Changes in Savings in the Twentieth Century," in *Saving in the Modern Economy*, ed. by W. W. Heller, F. M. Boddy and C. L. Nelson, University of Minnesota, Minneapolis, 1953, p. 146.

an intrinsic defect of the formula or because of shortcomings of the saving or the employment estimates.[1] Had he introduced the specific characteristics of the behaviour of consumption in the unemployed sector, summarised in the concept of its resistance, instead of holding fast to the assumption of 100% resistance, implied in his empirical formula, he would have had a better chance of reconciling the formula with the short-term variations in the empirical series.

4. Dissaving Caused by Unemployment in General

The aggregate net dissaving due to unemployment in the defined sense is given by the formula for net savings in an economy

$$S = aY - ru\bar{Y} \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (1)$$

where a is the national propensity to save established for conditions of full employment and kept unchanged in the employed sector, Y is the national income in the current year, $\bar{Y}$ is the national income corresponding to the full-employment level in the economy, r is the coefficient of resistance of consumption in the unemployed sector and u the percentage of unemployment.

By simple algebraic transformation this general formula can be used to define conditions under which the critical point of zero net national savings is to be expected. To make the transformation simpler, we have only to express the current national income Y in terms of national income at the full-employment level by writing

$$Y = \bar{Y}(1 - u) \quad (2)$$

Then the zero level of net national saving will be reached when the saving of the employed sector is equal to the dissaving of the unemployed sector, *i.e.*,

$$aY = ru\bar{Y} \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (3)$$

or

$$a\bar{Y}(1 - u) = ru\bar{Y}$$

and by re-arranging this expression we get the unemployment associated with zero net saving, namely

$$u = \frac{a}{r + a} \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (4)$$

By a similarly simple expression, a formula for finding the resistance of consumption in the unemployed sector can be defined. By re-arranging formula (3) we get

$$r = \frac{a(1 - u)}{u} \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (5)$$

From the above expressions there follow some straightforward rules useful in interpreting empirical series: Formula (1) is a useful guide for determining the "normal" propensity to save under conditions of full employment. If the series of net saving has years with a nearly zero unemployment,

[1] R. W. Goldsmith, *op. cit.*

the ratio of actual net savings to the net national income gives the "normal" propensity to save without the need of any further adjustment. If there are available only years with a lower (but not zero) unemployment, the "normal" propensity to save can be determined only after a proper allowance is made for the simultaneous dissaving. On the other hand, the best approximation to the value of resistance of consumption in the unemployed sector can be found in years when the magnitude of the member expressing dissaving is substantial, and thus the calculation is less exposed to hazards from erratic elements in the empirical material. On commonsense grounds it may be found advisable not to use for the latter purpose information from the years of greatest unemployment, as the unemployment of the preceding years might already have affected the resistance of the unemployed sector. Years near zero net national saving seem the best starting point for these calculations.

5. Some Suggestions from Schematic Calculations

5.1. *Unemployment Associated with Zero Net Saving*

The schematic calculations of unemployment associated with zero net saving in Table I have the merit that they determine the logical consequences ensuing from combinations of the two factors relevant for aggregate

Table I

Unemployment Associated with Zero Net Saving

Co-efficient of Resistance of consumption. \ Saving at full employment.	5%.	7%.	8%.	9%.	10%.	11%.	12%.	20%.
30%	14·3	18·9	21·1	23·1	25·0	26·8	28·6	40·0
40%	11·1	14·9	16·7	18·4	20·0	21·6	23·1	33·3
50%	9·1	12·3	13·8	15·3	16·7	18·0	19·4	28·5
60%	7·7	10·4	11·8	13·0	14·3	15·5	16·7	25·0
70%	6·7	9·1	10·3	11·4	12·5	13·6	14·6	22·2
80%	5·9	8·0	9·1	10·1	11·1	12·1	13·0	20·0
90%	5·3	7·2	8·2	9·1	10·0	10·9	11·8	18·2
100%	4·8	6·5	7·4	8·3	9·1	9·9	10·7	16·7

results of the capital formation in any economy. An empirical investigation cannot change anything in the calculated results. The net of these schematic calculations covers the whole field which may come into practical consideration.

The range of resistance in the unemployed sector examined here spreads from 100 down to 30%; it goes below the level likely to be reached

under the social conditions of contemporary industrial communities.[1] It will almost certainly be agreed that the most frequent cases will be those with somewhere between one-half and three-quarters of normal consumption. Thus we may concentrate our attention on the three central rows of Table I. This eases the task of guessing the "normal" propensity to save likely to prevail in any economy under examination.

Those familiar with the specific conditions of the economy examined will find little difficulty in marking on the table the region most relevant to their case. But, even without an allowance for the specific conditions of a definite country, the range of the most probable cases is a fairly narrow one; it is delimited by one-half to three-quarters of normal consumption in the vertical direction, and by some 10–12% of propensity to save in the horizontal direction. In this region the critical point of zero net saving may, according to the Table, already be reached at about 12·5% unemployment, but must be reached before the unemployment exceeds 19·4%.

Alternatively, it can be inferred from the table that a country with, *e.g.*, 10% unemployment can expect to have net saving only if the two relevant factors meet in combination corresponding to the following examples:

(1) if with a resistance of consumption not greater than 70% of the normal level, the propensity to save is higher than 8%;

(2) or if with a resistance of consumption not exceeding 60%, the propensity to save is higher than 7%;

(3) or again if with a propensity to save not greater than 5%, the coefficient of consumption in the unemployed sector falls to something near 40%.

Inferences from the table could be multiplied; they may well give food for thought to many participants in recent inflation–deflation controversies.

The implications of the point of zero net saving for general economic development cannot be elaborated in this connection. We shall confine ourselves to the statement that this situation is bound to threaten whenever any of the indicated combinations of the two factors analysed is allowed to emerge. In such a situation the rigidities of any economic system may produce problems difficult of solution through normal financial channels: the economic crisis is then bound to produce an acute financial crisis and commence another round of a self-propagating spiral.

5.2. *The Sensitivity of National Aggregates of Saving to Changes in Employment*

The sensitivity of national aggregates of saving to changes in unemployment is calculated in Table II, where the decrease of net saving is expressed as a percentage of national saving at full employment in economies with

[1] The 100% resistance would imply a higher level of consumption than under conditions of full employment; for in this case the normal saving would also be eliminated. However, the disappearance of gross production from the unemployed sector leaves uncovered the inevitable maintenance and accrued obsolescence which constitute a negative contribution of the unemployed assets. This item may take the place of a considerable part of the amount of normal saving.

TABLE II

Changes in National Aggregates of Saving due to 1% Unemployment

Decrease in the percentage of Full-employment Saving

Co-efficient of Resistance of consumption. \ Saving at full employment.	5%.	7%.	8%.	9%.	10%.	11%.	12%.	13%.	20%.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
30%	7·0	5·3	4·8	4·3	4·0	3·7	3·5	3·3	2·5
40%	9·0	6·7	6·0	5·4	5·0	4·6	4·3	4·1	3·0
50%	11·0	8·1	7·3	6·6	6·0	5·5	5·2	4·8	3·5
60%	13·0	9·6	8·5	7·7	7·0	6·5	6·0	5·6	4·0
70%	15·0	11·0	9·8	8·8	8·0	7·4	6·8	6·4	4·5
80%	17·0	12·4	11·0	9·9	9·0	8·3	7·7	7·2	5·0
90%	19·0	13·9	12·3	11·0	10·0	9·2	8·5	7·9	5·5
100%	21·0	15·3	13·5	12·1	11·0	10·1	9·3	8·7	6·0

some selected propensities to save and for different coefficients of resistance of consumption in the unemployed sector.

The calculation of this sensitivity (σ) is based on formula (1), in which the current income (Y) is made equal to the normal income ($\bar{Y}$) after deduction of the income lost by unemployment (u) and the current net saving (S) related to the normal aggregate of national saving ($\bar{S}$), *i.e.*,

$$\sigma = 1 - \frac{S}{\bar{S}} \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (6)$$

where $S = a(\bar{Y} - u\bar{Y}) - ru\bar{Y}$

and $\bar{S} = a\bar{Y}$

Thus $$\sigma = \frac{a\bar{Y} - a(\bar{Y} - u\bar{Y}) + ru\bar{Y}}{a\bar{Y}}$$

giving $$\sigma = \frac{u(a + r)\bar{Y}}{u\bar{Y}} \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (7)$$

which for $u = 1$ gives

$$\sigma = \frac{a + r}{a} \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (8)$$

The calculations in Table II illustrate the dependence of national aggregates of saving on changes in unemployment in general, but in quite definite quantitative terms, for a chosen range of combinations between the two relevant factors: In the narrower range of combinations more probable in industrial countries of our time, say, between 9 and 13% of normal savings at full employment and with resistance of consumption between one-half and three-quarters of the normal level, a 1% change of unemployment has an echo of some 4–8% change in the national aggregate of savings (measured with the full-employment level as basis).

Table II may also serve as a numerical illustration of the importance of

an empirical investigation into the composition of the whole unemployed sector which would try to evaluate the frequency of groups with different resistance of consumption. In general, the high coefficients of resistance of consumption will be associated with high incomes backed by considerable stocks of wealth, and the individual propensity to save under full-employment conditions will be distributed in accordance with the known tendencies. The individual cases will be found clustered in a region somewhere near a diagonal running from the upper left-hand corner of a table analogous to Table II, but elaborated, of course, to cover the investigated field in a more comprehensive way.

TABLE III

Net Capital Formation Associated with Changing Unemployment as a percentage of "Normal" Income

Propensity to save.	11%.			12%.			13%.		
Coefficient of Resistance of consumption. / Unemployed Sector, %.	50%.	60%.	70%.	50%.	60%.	70%.	50%.	60%.	70%.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	10·4	10·3	10·2	11·4	11·3	11·2	12·4	12·3	12·2
2	9·8	9·6	9·4	10·8	10·6	10·4	11·7	11·5	11·3
3	9·2	8·9	8·6	10·1	9·8	9·5	11·1	10·8	10·5
4	8·6	8·2	7·8	9·5	9·1	8·7	10·5	10·1	9·7
5	8·0	7·5	7·0	8·9	8·4	7·9	9·9	9·4	8·9
6	7·3	6·7	6·1	8·3	7·7	7·1	9·2	8·6	8·0
7	6·7	6·0	5·3	7·7	7·0	6·3	8·6	7·9	7·2
8	6·1	5·3	4·5	7·0	6·2	5·4	8·0	7·2	6·4
9	5·5	4·6	3·7	6·4	5·5	4·6	7·3	6·4	5·5
10	4·9	3·9	2·9	5·8	4·8	3·8	6·7	5·7	4·7
11	4·3	3·2	2·1	5·2	4·1	3·0	6·1	5·0	3·9
12	3·7	2·5	1·3	4·6	3·4	2·2	5·4	4·2	3·0
13	3·1	1·8	0·5	3·9	2·6	1·3	4·8	3·5	2·2
14	2·5	1·1	−0·3	3·3	1·9	0·5	4·2	2·8	1·4
15	1·9	0·4	−1·1	2·7	1·2	−0·3	3·6	2·1	0·6
16	1·2	−0·4	−2·0	2·1	0·5	−1·1	2·9	1·3	−0·3
17	0·6	−1·1	−2·8	1·5	−0·2	−1·9	2·3	0·6	−1·1
18	0	−1·8	−3·6	0·8	−1·0	−2·8	1·7	−0·1	−1·9
19	−0·6	−2·5	−4·4	0·2	−1·7	−3·6	1·0	−0·9	−2·8
20	−1·2	−3·2	−5·2	−0·4	−2·4	−4·4	0·4	−1·6	−3·6
21	−1·8	−3·9	−6·0	−1·0	−3·1	−5·2	−0·2	−2·3	−4·4
22	−2·4	−4·6	−6·8	−1·6	−3·3	−6·0	−0·9	−3·1	−5·3
23	−3·0	−5·3	−7·6	−2·3	−4·6	−6·9	−1·5	−3·8	−6·1
24	−3·6	−6·0	−8·4	−2·9	−5·3	−7·7	−2·1	−4·5	−6·9
25	−4·3	−6·8	−9·3	−3·5	−6·0	−8·5	−2·8	−5·3	−7·8

5.3. *Sensitivity of Estimates to Coefficients of Resistance of Consumption*

Table III also illustrates the significance of the coefficients of resistance of consumption for the results of estimates of net capital formation based on unemployment figures. The differences in the expected net capital formation based on different coefficients for consumption in the unemployed sector are quite negligible in cases of low unemployment. Even at 5% unemployment,

the coefficient of 70% resistance of consumption gives net capital formation of 7·9% instead of the 8·9% expected in a situation with only 50% resistance of the unemployed sector. But at 25% unemployment the 70% resistance yields a net dissaving of 8·5% of the national income (in terms of the full-employment level), whereas a 50% resistance would cause only a 3·5% dissaving. A 100% resistance of consumption at 25% unemployment would produce a net dissaving of 16% of the national income (measured in terms of the full-employment level).

These numerical examples show how important is the introduction of the factor of resistance of consumption in the unemployed sector for every model intended to explain the empirical aggregates of national saving; they also specify conditions under which the hazards involved increase to an especially serious extent.

6. Empirical Tests of the Discussed Assumptions

6.1. *Possible Deficiencies of the Empirical Material*

The logical necessity of consistency between the factors discussed above in general terms should have its counterpart in an analogous consistency of the empirical measurements of these factors. A lack of consistency in the results of these measurements cannot upset the conclusions reached from our general discussion. It can, however, disclose the imperfections of such measurements.

The statistical material examined, of which space allows us to discuss only two examples, points to the decidedly long-term nature of the propensity to save in the employed sector. On the other hand, in years of nearly full employment the resistance of consumption in the unemployed sector shows an over-sensitiveness caused by erratic elements in the available estimates. That these irregularities can be due only to erratic elements follows from Table III; one practical example of the usefulness of readings from our schematic tables for the first orientation of the research worker. The methodological problems ensuing from the changing predictive value of economic observations in cases like those suggested by this table are reserved for another opportunity. This note is inserted here only to explain the simplicity of the tools used in what follows.

6.2. *The Test on Data of the United States*

Table IV is intended as a synopsis of the available information and calculations based on our general discussion. Room is purposely left for speculation on the lines discussed and care has been taken to avoid the danger of obscuring the clarity of the principal components by over-elaboration of statistical technique.

The information used in the table consists of data on unemployment expressed as a percentage of all gainful workers.[1] Kuznets' estimates have been chosen for the present paper because they cover both years of full

[1] These data were obtained from *Historical Statistics of the United States 1789–1945*, p. 65, and S. Kuznets' estimates of net national income, gross and net capital formation in *National Income and Capital Formation 1919–1935*, New York, 1937, p. 85.

TABLE IV

Unemployment and Net Capital Formation in the United States

	1920.	1921.	1922.	1923.	1924.	1925.	1926.	1927.	1928.	1929.	1930.	1931.	1932.	1933.	1934.	1935.
1. Unemployment, %	1·33	11·20	6·79	1·71	4·57	1·82	1·01	3·45	3·88	0·89	5·91	14·19	22·71	23·36	19·04	17·56
2. Net national income:																
(a) Actual, $ milliard	72·4	58·3	59·7	69·7	70·4	74·8	79·5	77·4	80·4	83·4	72·9	56·0	39·6	39·3	47·8	53·0
(b) Full-employment level, $ milliard	73·4	65·7	64·0	70·9	73·8	76·2	80·3	80·2	83·6	84·1	77·5	65·3	51·2	51·3	59·0	64·3
3. Net capital formation:																
(a) Kuznets' estimate, $ milliard	11·6	3·7	5·8	9·7	6·8	10·6	9·7	8·9	8·2	10·1	3·9	−0·3	− 4·4	−3·0	−1·9	0·8
(b) As a percentage of actual national income	16·0	6·4	9·7	13·9	9·7	14·2	12·2	11·5	10·2	12·1	5·4	−0·5	−11·1	−7·6	−4·0	1·5
(c) As a percentage of full-employment national income	15·8	5·6	9·1	13·7	9·2	13·9	12·1	11·1	9·8	12·0	5·0	−0·5	−8·6	−5·8	−3·2	1·2
4. Expected net savings (as a percentage of full-employment national income):																
(a) At 50% resistance	12·2	5·9	8·7	11·9	10·1	11·8	12·4	10·8	10·6	12·4	9·3	4·1	−1·3	−1·7	1·0	1·9
(b) At 60% resistance	12·0	4·8	8·0	11·7	9·7	11·7	12·2	10·5	10·2	12·3	8·7	2·6	−3·6	−4·1	−0·9	0·2
(c) At 70% resistance	11·9	3·7	7·4	11·6	9·2	11·5	12·2	10·1	9·8	12·2	8·1	1·2	−5·8	−6·4	−2·8	−1·6
(d) At 100% resistance	11·5	0·3	4·3	11·1	7·8	11·0	11·9	9·1	8·6	11·9	6·3	−5·8	−12·7	−13·4	−8·5	−6·9
5. Renewals:																
(a) Kuznets' estimate, $ milliard	10·5	7·8	7·5	8·5	8·4	8·6	9·3	9·3	9·6	10·2	9·8	8·8	7·5	7·3	8·0	8·2
(b) As a percentage of actual national income	14·5	13·4	12·6	12·2	11·9	11·5	11·7	12·0	11·9	12·2	13·4	15·7	18·9	18·6	16·7	15·5
(c) As a percentage of full-employment national income	14·3	11·9	11·7	12·0	11·4	11·3	11·6	11·6	11·5	12·1	12·6	13·5	14·6	14·2	13·6	12·8
6. Observed resistance:																
(a) Including depreciation as a percentage of full-employment national income	−223·5	53·1	44·4	−53·9	70·2	−62·5	76·1	42·1	69·5	99·4	122·4	82·1	82·1	67·5	72·1	54·2
(b) Excluding depreciation as a percentage of full-employment national income	−235·5	41·1	32·4	−65·9	58·2	−74·5	64·1	30·1	57·5	87·4	110·4	70·1	70·1	55·5	60·1	42·0
Impact of historical values (example):																
(a) Tension of price residuals	50·8	66·9	74·7	70·5	73·7	76·4	79·0	83·0	84·3	83·1	89·0	93·7	106·1	106·2	98·8	100·7
(b) Renewals deformed by ½ of (*a*), as a percentage of full-employment national income	9·0	10·0	10·5	10·2	10·4	10·6	10·7	11·0	11·1	11·0	11·3	11·6	12·4	12·4	11·9	12·1
(c) Change of net savings as a percentage of full-employment national income	+3·0	+2·0	+1·5	+1·8	+1·6	+1·4	+1·3	+1·0	+0·9	+1·0	+0·7	−0·4	−0·4	+0·4	+0·1	−0·1

employment and of unemployment and all other conditions offer the best chances for comparability.

The net *national income at full-employment level* is the net national income from Kuznets increased by the assumption of a straightforward proportionality between the established national income and the degree of employment.

The effect of applying our earlier schematic calculations is shown in the table by four alternatives of the " *expected net savings* " giving the net capital formation as a percentage of national income at the full-employment level.

The *propensity to save* assumed for the employed sector in these calculations is 13%. This coefficient is chosen as being approximately the ratio of net capital formation to the net national income established in the years of lowest unemployment: 1926 with 1·01% of unemployed had a net capital formation of 12·2% (12·1% of full-employment level) of the net national income, and 1929, with 0·89% unemployed, 12·0% (or 12·1% respectively). An allowance for the simultaneous dissaving of the small number of unemployed raises the ratio mentioned by something between $\frac{3}{4}$ and 1%, according to the actual resistance of consumption at that time, which, as these were years of nearly full employment, must have been fairly high. Years in the early twenties recording a higher percentage of net capital formation have not been regarded as relevant for our purpose. They have been considered as years when the effects of the unsettled post-war conditions were still producing some erratic changes.[1] Moreover, our indicator of the tension of price residuals, constructed *ad hoc*, shows a large span between the historical values and current price conditions in these years.

One very important point which should not be missed when studying any empirical material is the *rigidity of depreciation allowances* needed in this sector; Kuznets' figures for this are a telling illustration. For here the description and interpretation of characteristics of the unemployed sector reveals a quite distinct component of the summary concept of " resistance of consumption," the behaviour of which apparently has its own features worthy of and suitable for a special investigation.

For this reason, the " Observed Resistance of Consumption in the Unemployed Sector " has two variants in Table IV:

(*a*) includes appropriations for depreciation in the unemployed sector;

(*b*) excludes appropriations for depreciation; the deduction provides these appropriations at full, " normal " rate (12% of the net income at full-employment level); this takes into account price changes in so far as these are expressed in the total national income, but does not account for possible savings through a smaller physical deterioration of assets when not used; the deduction makes the remainder a better expression of the resistance in the more familiar terms related directly to human consumption.

[1] See Kuznets' warnings, *op. cit.*, p. 84.

The student of the unemployed sector may find it useful to note that the contribution of replacement allowances grows in weight within the overall coefficient as the resistance of other consumption declines.

The testing of our general assumption on the information from the United States suggests that a fully elaborated model would benefit by dividing the overall coefficient of resistance of consumption in the unemployed sector into the two described components, each of which has its special conditions for empirical measurement.

To illustrate by a numerical example the possible deforming influences of historical costs on social accounts, the indicator of the tension of price residuals has been applied to a constant ratio of renewals to national income at full employment (12%), in the neighbourhood of which Kuznets' estimates are clustered. The level of renewals thus deformed is expressed as a percentage of national income at full employment. The differences between the standard 12% and the deformed series of expected renewals gives the artificial elements which might have entered illegitimately into the series of net saving; the series of fictitious saving (or dissaving) is also expressed as a percentage of national income at the full-employment level.

6.3. *The Test on Information for the United Kingdom*

In this example we try to demonstrate that the assumptions and schematic calculations in the first part of this paper can be a useful set of consistency rules for verifying results of empirical investigations of social accounting. They may serve as a detector of major deficiencies in the estimates, originating perhaps in a systematic bias of the actual behaviour of the economy itself under special historically given conditions. Thus the investigation may get an orientation of the direction in which the attention should be focused.

The basic sources of information for the synopsis constructed in Table V are: the average percentage of unemployed calculated from the total number of work-people insured under the Unemployment Insurance Acts[1] and the estimates of net national income of the United Kingdom made by J. R. N. Stone and published in absolute figures by A. R. Prest.[2]

The expected net capital formation has been first calculated on the assumption that the propensity to save in the employed sector has been 12% and that the dissaving corresponded to an overall 60% resistance of consumption. The 60% resistance of the unemployed sector has been chosen with regard to the persistently high level of unemployment.

The missing information on renewals has been substituted by a series—" Expected Capital Goods for Renewals "—for the construction of which the American experience has been used. The American data point to a fairly stable ratio of renewals required to national income at the full-employment

[1] *Statistical Abstracts for the U.K.* and *Abstracts of Labour Statistics of the U.K.* The 1919 unemployment was assumed to be equal to 1920 in regard to the absence of change in the information on unemployed members of trade unions.

[2] A. R. Prest, " National Income of the United Kingdom," in the ECONOMIC JOURNAL, March 1948, p. 59.

TABLE V

Unemployment and Expected Net Capital Formation in the United Kingdom

	1919.	1920.	1921.	1922.	1923.	1924.	1925.	1926.	1927.	1928.	1929.	1930.	1931.	1932.	1933.	1934.	1935.	1936.	1937.	1938.
1. Unemployment, %	3·9	3·9	16·9	14·3	11·7	10·3	11·3	12·5	8·9	7·4	8·2	11·8	16·7	17·6	16·4	13·9	13·1	11·2	9·3	10·2
2. Net national income:																				
(*a*) Established, £m.	5,461	5,664	4,460	3,856	3,844	3,919	3,980	3,914	4,145	4,154	4,178	3,957	3,666	3,568	3,728	3,881	4,109	4,388	4,616	4,671
(*b*) Full-employment level, £m.	5,683	5,894	5,367	4,499	4,353	4,369	4,487	4,473	4,550	4,486	4,551	4,486	4,401	4,330	4,459	4,508	4,728	4,941	5,089	5,202
3. Expected net capital formation:																				
(*a*) As a percentage of net national income at full employment	9·19	9·19	−0·17	1·70	3·58	4·58	3·86	3·00	5·59	6·67	6·10	−3·50	−0·02	−0·67	0·19	1·99	2·57	3·94	5·30	4·66
(*b*) £m.	522	542	−9	76	156	200	173	134	254	299	278	157	−1	−29	8	90	122	195	270	242
4. Clark's estimates:																				
(*a*) Gross fixed investment, £m.	—	—	—	—	—	576	562	575	613	600	615	607	557	522	557	628	689	767	838	—
(*b*) Overseas investment, £m.	—	—	—	—	—	74	54	24	117	144	154	37	−94	−23	−6	0	16	−33	−71	—
5. Net domestic investment: (3(*b*)−4(*b*)), £m.	—	—	—	—	—	126	119	110	137	155	124	120	93	− 6	14	90	106	228	341	—
6. Capital goods for renewals:																				
(*a*) Expected, £m.	682	707	644	540	522	524	538	537	546	538	546	538	528	520	535	541	567	593	611	624
(*b*) "Available" (4(*a*)−5), £m.	—	—	—	—	—	450	443	465	476	445	491	487	464	528	543	538	583	539	497	—
(*c*) Difference ((*b*)−(*a*)), £m.	—	—	—	—	—	−74	−95	−72	−70	−93	−55	−51	−64	8	8	−3	16	−54	−14	—
7. (*a*) Tension of price residuals, historical values as a percentage of current prices	39·5	38·2	54·5	72·6	75·8	75·8	78·8	82·0	84·9	89·1	89·0	93·7	100·0	103·2	104·3	105·3	104·1	100·4	93·0	94·9
(*b*) Renewals deformed by tension, £m.	476	489	497	466	459	461	481	489	505	509	516	521	528	528	547	555	579	594	590	608
(*c*) Difference between expected and deformed appropriations, (7(*b*)−6(*a*)), £m.	−206	−218	−147	−74	−63	−63	−57	−48	−41	−29	−30	−17	0	8	12	14	12	1	−21	−16
8. Expected gross capital formation:																				
(*a*) Unadjusted, £m.	1,204	1,249	635	616	678	724	711	671	800	837	824	695	527	491	543	631	689	788	881	866
(*b*) Adjusted for deformation by tension of price residuals, £m.	998	1,031	488	542	615	661	654	623	759	808	794	678	527	499	555	645	701	789	860	850
9. Adjusted expectation of net capital formation, £m.	316	324	−156	2	93	137	116	86	213	270	248	140	−1	−21	20	104	134	196	249	226

level. From the schematic calculations in Table I we know that zero net saving in a country with 60% resistance of consumption and a 12% propensity to save is due at an unemployment exceeding 16% (16·7%). Accordingly, the sales of capital goods in such years must have been on a level just covering the requirements of objectively measured renewals.

The unemployment figures of the United Kingdom stood most closely to the critical point of zero net saving in 1931 and 1933. The total sales of goods for fixed asset formation in the United Kingdom were, according to C. Clark in the ECONOMIC JOURNAL,[1] on the level of £556 million and £561 million respectively. This was 12·9% of national income at the full-employment level of these years. Kuznets' estimates of renewals in years close to full-employment conditions cluster near 12% of national income, but in years at zero net saving (or above) tend to exceed this level (see Table IV, where the zero year 1931 records 13·5%). In the light of these experiences a coefficient of 12% out of national income at the full-employment level has been taken as sufficient for estimating the renewals due in the economy of the United Kingdom.

The required renewals with new domestic fixed investments should give a total corresponding to the sales of assets for fixed capital formation. This comparison is made in the table by deducting first "Overseas Investment" from the "Expected Net Capital Formation" in "Net Domestic Investment." Then by allocating capital goods to cover the expected net domestic investments we get the "Available" Capital Goods for Renewals. The difference between the "Available" and Expected Capital Goods for Renewals may be useful in the orientation of further investigations in this field.

The general impression may be summarised by saying that Clark's estimates of Gross Fixed Investment for the years 1931–37 are in fairly good agreement with the expectation from our general assumptions. This can be stated in spite of the differences in the years 1931, 1936 and 1937, as these differences are evidently caused by large negative amounts of overseas investment, of which apparently only a smaller fraction belongs to the long-term forms of capital transactions. On the other hand, the differences found in the years 1924–30 cannot be explained by reducing the overseas investments to the long-term net new capital issues. The deficit of the "available" capital goods is systematic and considerable, and its size would be increased if the comparison were made with regard to long-term issues.

A hypothesis regarding fluctuations in inventories might help to explain short-term irregularities in both directions throughout the whole investigated period, if it could be shown to correspond with reality. For a long-term absorption of new saving by changes of inventories there was, however, little probability in an economy with a fairly stable level of national income.

[1] C. Clark, "Determination of the Multiplier from National Income Statistics," in the ECONOMIC JOURNAL, September 1938, p. 446. See also Bretherton, Burchardt and Rutherford, *Public Investment and the Trade Cycle*, Oxford, 1941, p. 402.

Thus a tentative calculation of the possible deformation of actual renewals has been added to the synopsis in Table V. The " Tension of Price Residuals " expresses the historical costs of assets as a percentage of the current cost for the respective year. The deformed renewals ensued from application of the " Tension " under the assumption that this was effective by one-half of the maximum of its possible influence.

The basis of a figure of one-half for this coefficient is that the financing of fixed assets uses the form of long-term loans to the extent of about one-half of their historical costs. A renewal of these assets tends to be effected in this proportion, again in the form of loans, and if in time of renewal a higher price level prevails the economy treats the additional amounts needed as new investment, not as mere renewals. In such cases the national net saving is absorbed by the economy for a different purpose from that generally assumed.

The thus calculated " Renewals Deformed by Tension " are fairly close to the " Available " capital goods for renewals.

In this way the synopsis in Table V arrives at the expected gross capital formation, first in an unadjusted form, showing what the gross capital formation would have been like under the established employment conditions, if the renewals were made according to economic requirements. Then it proceeds to deduct the neglected renewals and arrives at the reduced actual gross capital formation. The Adjusted Expectation of Net Capital Formation concludes the whole examination. I must emphasise that the testing procedure described has the limited purpose of an empirical appendix to the general discussion of the first part of this paper.

6.4. *A Case of Regional Distribution of Unemployment and Changes in Saving Deposits*

Table VI shows the results of the author's investigation of the influence of unemployment on the annual net changes of saving deposits in districts of the industrial part of Czechoslovakia during the years 1928–35.

The net changes of deposits are expressed there as a percentage of the level of savings at the beginning of each year. In the thirties the total of these savings was nearly two-thirds of the national income at full-employment level, thus the interpretation of the table in terms of national income can be readily made, if the appropriate allowance is made. The percentage of unemployment has then been calculated from the total of the gainfully engaged population in each district.

Savings deposits were then the most popular form of investment, but their changes may differ in this or that year from those of the overall net saving. But in spite of all the pitfalls of limited information, exposed to a number of disturbing changes, the relationship discussed between unemployment and saving emerges reasonably clearly. The original annual tables repeatedly showed a clustering in good agreement with the association apparent from mere inspection of their summary in Table VI. With regard to the limitations of information mentioned, the objective of the investigations was to find the conditions for the most probable emergence of the zero point for savings deposits. This has been found in the range

TABLE VI

Savings Deposits and Unemployment [1]

Number of cases in which the percentage of unemployed was associated with the given percentage of net increase of saving deposits in districts of the industrial part of Czechoslovakia, 1928–35.

Deposits, %. + − / Unemployment, %.	Net increases.											Net decreases.						
	20·1 and more.	18·1–20·0.	16·1–18·0.	14·1–16·0.	12·1–14·0.	10·1–12·0.	8·1–10·0.	6·1–8·0.	4·1–6·0.	2·1–4·0.	0·1–2·0.	0·0–2·0.	2·1–4·0.	4·1–6·0.	6·1–8·0.	8·1–10·0.	10·1 and more.	Total.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
0– 2·0	17	1	8	16	35	47	83	89	76	29	15	15	6	4	1	1	3	446
2·1– 4·0	3	—	—	1	4	2	10	8	19	20	26	19	17	7	—	1	1	138
4·1– 6·0	2	—	—	2	1	1	3	9	15	19	25	30	23	15	3	3	1	152
6·1– 8·0	2	—	—	—	2	2	2	4	3	13	18	27	12	12	5	1	1	104
8·1–10·0	1	—	—	—	1	—	1	1	3	5	10	18	11	10	3	2	2	68
10·1–12·0	2	—	—	—	—	1	2	—	5	5	5	10	11	6	5	2	3	57
12·1–14·0	—	—	—	—	—	1	—	—	2	7	2	6	3	6	1	—	3	31
14·1–16·0	—	—	—	—	—	—	—	—	4	4	4	6	7	1	3	1	1	31
16·1–18·0	—	—	—	—	—	—	—	1	2	4	12	4	5	9	3	1	1	42
18·1–20·0	—	—	—	—	1	—	1	—	—	—	4	8	4	3	4	3	2	30
20·1–22·0	—	—	—	—	—	—	1	2	—	2	2	2	1	5	3	1	—	19
22·1–24·0	—	—	—	—	—	1	—	—	—	3	3	4	1	3	3	—	1	19
24·1–26·0	—	—	—	—	—	—	—	—	—	1	1	2	5	1	1	1	2	14
26·1–28·0	—	—	—	—	—	—	—	—	—	1	2	4	—	4	—	1	—	12
28·1–30·0	—	—	—	—	—	—	—	—	—	—	1	1	1	3	—	1	1	8
30·1 or more	—	—	—	—	—	—	—	—	—	—	2	2	—	2	4	—	3	13
Total:	27	1	8	19	44	55	103	114	129	113	132	158	107	91	39	19	25	1·184

[1] From the author's *Hospodářský život a úvěr*. Prague, 1937, p. 146.
Also in the author's *Národohospodářská Theorie*, Part II. Prague, 1947, p. 108.

of 6–8% of unemployed. At this range the number of districts with net dissaving began to outnumber districts with net increments.

7. A Summary with Some Further Suggestions

The main object of this paper has been draw attention to the need for a systematic examination of the specific characteristics of the unemployed sector in an economy. It therefore underlines the necessity of recognising the existence of the unemployed sector with its full economic implications.

The tentative collection of evidence from the inter-war development of unemployment, national income and net capital formation points to fairly stable coefficients of propensity to save in the employed sector, with some bias to unconscious deformation due to the tension ensuing from discrepancies between the historically produced valuation of accumulated fixed assets and the prevailing price conditions of the time.

To these general conclusions a few further points may be attached here, which, however, must be accepted more as mere suggestions worthy of further elaboration:

(1) The 12% propensity to save indicated by the examples analysed implies the need of a high rate of growth or of another outlet for savings, if economies with such a disposition are to maintain full employment.

(2) The 12% of normal renewals points to a first-cost value of fixed assets of almost 400% of national income at full-employment level, wherever on the average 2 units of all buildings (with 2% renewal costs) are combined with 1 unit of plant (requiring 5% renewal costs). An amount of a half-year's national income for inventories completes the typical asset equipment of an economy of the above type.

(3) The rate of growth needed to maintain full employment under such conditions is about 4% of net national income. The net accumulation of assets for this growth is 18% of national income, of which 12% comes from the above propensity to save and 6% from the difference between actual renewals and depreciation under conditions of constant growth, as evaluated by Domar.[1]

(4) An economic crisis initiated primarily by under-investment (or over-saving) should have its absolute limit in the level of unemployment associated with zero net savings, as calculated in Table I. At this point such an economic crisis will have completely worn out its momentum, if no secondary effects are put into motion by the original disturbing factor.

[1] E. D. Domar, " Depreciation, Replacement and Growth " in the Economic Journal, March 1953, p. 8. In an economy with 4% growth and thirty years average life of assets the actual renewals require only some 53% of depreciation allowances (straight-line method), thus leaving 47% reserves free for further expansion. The depreciation of the typical equipment under (2) is 12% of the net national income, of which almost one-half (5·6% national income) is a reserve free for further investment. With 12% from normal propensity to save the total investible funds amount to 17·6% practically corresponding with the above requirement of new assets.

(5) If an accumulation of secondary effects or other additional causes raises unemployment above the level associated with zero net saving it is bound to create situations in which the contingent adjustments to the net national dissaving exceed the capacity of absorption of the normal financial channels of the economy. Calculations in Table I indicate when such a critical point is about to be expected, if conditions of a particular case are taken into consideration.

(6) The long-term nature of the overall propensity to save points to the importance of the resistance of consumption in the unemployed sector for measures stabilising the economic development. The calculations in Table I indicate the different dispositions of the various strata of resistance of consumption with regard to effectiveness of measures undertaken to increase the overall resistance of consumption.

(7) The calculations in our schematic tables indicate in general terms the approximate dimensions of the tasks to be expected under various environmental conditions, and may give some guidance for a preliminary examination of the adequacy of measures prepared or used in case of emergency; they may be seen as a temporary substitute before a more accurate knowledge will be available from empirical investigation of the resistance of consumption in the unemployed sector.

(8) And last, there must be put on record the generally admitted fact that the rigidity of historically given valuations of fixed assets, accumulated under different price conditions, tends to aggregate factors disturbing the smooth general economic development. Measures protecting the national accounts against the deforming tendencies originating from the tension of residuals of past price development may eliminate one not insignificant element from the group of factors undermining the stability of economic development.

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REVIEWS

The Economist in the Twentieth Century, and Other Lectures in Political Economy. By LIONEL ROBBINS. (London: Macmillan, 1954. Pp. xi + 225. 16*s*.)

THE central core of this powerful and impressive book consists of a series of lectures on the problems of international trade and exchange delivered at Rio de Janeiro in 1953. But the author has done well to place in the immediate foreground of this series an earlier (1949) lecture on " Full Employment as an Objective." " I have little doubt," he told his hearers, " that if this lecture is ever published it will be made the occasion for aspersions, not only upon my understanding but even upon my good faith." I hope and believe the result will be very different. It would be impossible to miss the grave and humane concern for the public good, impossible to improve on the studied moderation of language, with which in this paper Professor Robbins not only challenges the exaggerated concept of " full employment " publicised by Lord Beveridge in his *Full Employment in a Free Society* but marshals the reasons against regarding even a more wisely conceived employment objective as the unique, or even as a necessarily over-riding, aim of policy. It is the candour and courage with which Robbins discloses his attitude on this vital matter which give him a right, still unearned by a good many eloquent apostles of a " return to freedom," to press hard, as he does in these Rio lectures, the case for liberal trade and exchange policies.

Does he press that case too hard? Does he, in his justified determination to hammer in the close connection between unwise domestic policies and " balance of payments difficulties," take too short-run and optimistic a view of the admitted phenomena of post-war " dollar shortage "? Opinions will differ; and a review is not the place to attempt to traverse the whole complex field. But it must be admitted that almost simultaneously with the delivery of these lectures the present reviewer in fumbling parable at Charlottesville, and Professor Hicks with scientific clarity at Oxford, were treating the concept of chronic " dollar shortage " with greater respect than Robbins can bring himself to accord to it. To both of us, I think, the difficulty occasioned by differential rates of productivity-increase in different countries seemed to be not merely a monetary difficulty, whose relevance to the case of post-war America could be disproved, as Robbins seeks to disprove it, by pointing out that she has considerately indulged in a handsome inflation, but a more real one connected with the *character* of the relative productivity-increase. Perhaps we were mistaken—Sir Donald MacDougall seems to think so (*Economica*, August 1954, p. 192), and so does Mr. Johnson (ECONOMIC JOURNAL, September 1954, p. 462, n. 4); and anyway I for one did not intend my treatment to be taken as a final justification of permanently isolatory policies, but rather as a part-explanation of their prima facie

attractiveness. But I still feel there is more to be said on this aspect of the " dollar problem " than would be gathered from this book.

Apart from this doubtful matter, on nearly every important issue Robbins seems to me to achieve almost exactly the right balance of sound theory and practical wisdom. Thus, after a little legitimate merriment at the " dismaying innocence " of recent " discoverers " of the possibility that trade restrictions may turn the terms of trade in favour of the restricting country, he comes down firmly on the side of the Marshallian view that for Britain as a long-run policy that game is not worth the candle (pp. 109–14); nevertheless, he admits frankly the strength of the case, in a world already tangled in restrictions, against precipitate unilateral economic disarmament, and pins his faith rather to the laborious multilateral procedures of the estimable cacophonous GATT (pp. 135–47). Thus also, in the matter of the efficacy of exchange movements in restoring external equilibrium, the " special cases of the more unworldly text-books " leave him " wholly unconcerned "; but he is very much alive to the danger that indefinitely floating exchanges (as contrasted with exchanges adjustable à la Bretton Woods), so far from automatically preserving equilibrium, would be likely to generate persistent inflationary pressures which it would need definite acts of policy to resist (pp. 98–9). Convertibility, again, he holds to be a right aim, and one not to be indefinitely postponed; nevertheless, a premature attempt to achieve it might harmfully delay the dismantling of damaging restrictions on trade (pp. 153–4). On all these matters and others too—the limitations of fiscal policy (pp. 69–73), the importance of a firm hold on the credit base (p. 76)—these lectures seem to me full of ripe wisdom, skilfully and lucidly expressed.

The prologue which gives its title to the volume is an address delivered at one of the recent anniversary gatherings of the famous School in whose service Professor Robbins has so faithfully and fruitfully laboured. My admiration for this splendid oration is in no measure diminished by the fact that I would still, as a recent interchange has revealed (see this JOURNAL, December 1954, p. 677), draw the frontier up to which purely economic analysis can legitimately press somewhat more generously than himself; nor by the fact that I scent dangers as well as advantages in his adjurations to the young men and women whom he was addressing to turn themselves not only into economists but into something more. It would not do, I think, if all economists, including those outside the public service, were at all times too anxiously concerned about what is—or is currently said to be—administratively or politically possible or the reverse. That Robbins himself has transcended the dangers is shown by the paper on Employment Policy already alluded to, and by the essay in high statesmanship which (except for an admirably conceived and executed appendix on economic policy in wartime) brings the book to a close. This essay is a powerful critique, written in 1950, of the more half-baked schemes for " European economic integration " then in some vogue, and a powerful plea for the alternative policy of advance " Towards an Atlantic Community." Perhaps—I do not know—if the

author were re-writing it in 1955, he would feel sufficiently secure that the main stream of policy is going the way he wants to find more use than he did in 1950 for subsidiary groupings within the framework, or even overlapping the borders, of the NATO to which he bids us pin our primary loyalty. It is not, I think, altogether an accident that, as duly recorded on p. 162 of this book, the Organisation begotten of the Marshall Plan has since 1950 set an example to the more comprehensive and grandiose international bodies of "how difficult and delicate financial matters may be handled by a comparatively small secretariat with a minimum of fuss and publicity."

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The New Issue Market and the Finance of Industry. By R. F. HENDERSON. (Cambridge: Bowes & Bowes, 1951. Pp. xii + 172. 25*s.*)

THIS short book examines the significance for industry of the new-issue market, primarily the London new-issue market, in respect of the volume of new capital funds supplied through its agency, the cost of its services to industry in relation to the funds provided, and the degree to which and the costs at which the requirements of the small company are met as compared with those of the larger concern. These are measures of the efficiency of the new-issue market as part of the machinery for bringing together the supply and demand for investible funds. The book is not "a comprehensive study of the new issue market as a whole, much less of the capital market, or the finance of industry"; but the author's particular research, discussed below, is knit into the texture of a survey of more general scope which supplies some of the *rationale* for its subject matter and, as Sir Henry Clay observed in his preface, deserves attention as a contemporary study.

The structure of the book falls substantially into three parts. The first (Chapter 2) is an attempt to assess the volume of funds, *i.e.*, new capital funds, provided for industry, by way of share issues, through the new-issue market. The second (Chapter 3), complementary to this, is a study of the demand for and supply of funds for the finance of industry outside the London new-issue market.

In the former of these chapters the author starts from the figures of the volume of home industrial issues contained in *The Economist*, the Midland Bank and the Bank of England series of published figures of new capital issues. The work of some Cambridge economists in Mr. G. D. H. Cole's *Studies in Capital and Investment* directed to the same end, an estimation of the new capital provided, comes in for rough handling. On the basis of his own calculations for the two years 1926 and 1937, drawn from a detailed examination of *The Times* prospectuses, and using the work of Mr. E. A. Radice and Mr. Colin Clark on capital accumulation as a method of checking the financial figures with the estimates of real investment, Dr. Henderson arrives at some provisional results for 1926 and 1937 which are interesting, and useful. This is a shrewd discussion. It will increase the critical awareness among

students of new-issue figures of the pitfalls which are encountered. There is a useful appendix on published new-issue statistics of home industrial issues.

The next part, Chapter 3, provides in the first place, a comparison of the situation in Britain with that in the United States, mainly in 1930–40, based upon the abundant publications of the National Bureau of Economic Research. This brings out the well-known similarities between the industrial structure in America and this country and (in spite of differences in financial technique) of the outlines of the capital market, especially with regard to the financing of the small business. In passing, one might have hoped perhaps for some reference to the role of term loans in America, though these are not much of a resource for the small business. This review leads naturally to a discussion on the " Macmillan Gap " in this country, and the developments, partly stimulated by the fame which this feature of the Macmillan Report achieved, which took place between the two Wars and after 1945. Here the position of the small company is very much the key theme. To the account of the operations of ICFC in this section might be added one detail, which is the fact that the Corporation has decentralised its operations in Scotland, in the Manchester Region and in the Birmingham Region. This accords with the view put forward by Dr. Henderson of the need for local contact in dealing with the smaller concern. All the observations in this part seem to me to be interesting, including those concerning provincial issues. It is still reasonably up to date.

The third section of the book comprises Chapters 4, 5 and 6; and in these Dr. Henderson's special research contribution appears. This is based upon detailed analysis of the share issues of the last three years, 1945–47 inclusive. It starts with a chapter (Chapter 4) on the technique of analysis of new issues, which records the fruits of the toil and sweat which Dr. Henderson has undergone to acquire a knowledge of the technique of the issue market. This may be the place to say that in the application of this acquired skill Dr. Henderson has done a good job. Now and then in the book, I fancy, a groan escapes him about the tedium and difficulty of analysing prospectuses (Oh what labour! O prince, what pain!); but considered as a one-man job this is an excellent piece of work. It will, I hope, have blazed the trail for later investigations in which assistance will be available.

I have little to say in detail upon the results of new-issue statistics (Chapters 5 and 6) except one technical point that is important. This concerns the cost of placings where a quotation is obtained. Dr. Henderson takes as his general standard of cost the difference between what the company receives and what the investing public pays. This is a formula I have often used, but I must admit really as a shorthand expression for the difference between the price the company receives and the prospectus price. And Dr. Henderson himself in the case of public issues and offers for sale takes the prospectus price and does not propose to pursue " the possible margin of error " which may be thrown up in the dealings. In the case of placings, however, he has convinced himself, by reasons which are fully set out on pp. 91–3, that the

placing price cannot be taken reasonably as the price to the investing public. He therefore substitutes " the average price on the day on which transactions in the shares begin and are officially recorded on the stock exchange." This basis would, perhaps, be more accurately stated as " the average of the marks officially recorded on the day on which transactions in the shares begin." It is reasonable to suppose that in this type of case all bargains are marked; but not all marks are recorded; only one mark at any one price is as a rule recorded. It is thus not possible to get an unweighted average price of the transactions, still less, of course, a weighted average. However, this is not the gravamen of my objection. In a placing, as a matter of experience, the larger part usually is retained by the original taker (perhaps better described as " the investor " rather than " the investing public "). This is certainly true in the wide extension which placing, public and private, has lately received. The advantages of placings are several; one of them is that it is a cheap method. Dr. Henderson's formula overstates the cost of placings taken on any common-sense basis; and for that reason Tables 9, 10, 11, 14, 18 and 21 are to that extent vitiated. So are the two " conclusions " on p. 146. I believe that most market men, I am inclined to say all market men, would agree with this.

Coming now to the conclusions, and looking at the book as a whole, I have a feeling that Dr. Henderson, aside from the excellent factual analysis which he presents, is perhaps—may I say?—a little too inclined to discern trends and, broadly speaking, to generalise. To justify this impression without going into great detail may be difficult. To begin with, I would suggest that in so far as the deductions depend on a comparison of the 1926 and the 1937 estimates with the results of analysis of the years 1945–47, one should look at the experience of 1945–47 with a more provisional eye. These years were a little too soon after the War for so weighty a comparison. The three years 1952–54 will show a different picture: a different emphasis as between small and large issues and some further developments in the more informal operations of the market. Also (due to Profits Tax) issues and placings, public and private, of loan capital, with which this study hardly deals, had become more important.

The comment on Table 17 on p. 140 mainly exemplifies the same point; and it is perhaps worth emphasising the " fashion " element in the form of the securities which the market will prefer from time to time. In this, of course, the institutions play a leading part; and as regards the institutions, I think I could find a Shakespearean quotation to express the (short-term) variability of their notions.

Both of the conclusions on pp. 138–9 are stated too absolutely for my taste. As regards the first, the actual (though perhaps not the logical) movement as regards private companies was that many of them were becoming public companies, or rather being " floated," and some of them were raising new money by issues. To obtain new resources was not, I would think, the motive in the majority of cases. As regards the second, it represents important elements of fact but overstates the total effect. I agree that between 1937 and

1947 the minimum practicable size of issue did not rise greatly, and certainly not as much as prices.

The " Deductions " on p. 147 summarise to a certain extent all this section of the book. I would agree with the first proposition, that large financial institutions (including pension funds) are becoming more important as the investors in home industrial issues; one might add to this that it applies to the small as well as the larger industrial issues. What is said here about placings reflects current facts: the method is cheap, because a considerable proportion of the shares placed are acquired by long-term investors at the placing price. The observations about stagging and the role of short-term speculation are sound enough; and, of course, what is said about the advantages of the British system of underwriting as contrasted with American practice is much to the point.

The final conclusion (p. 152) that access to the issue market on reasonable terms is more important now than ever before as a stage in the growth of small firms is obviously true. Equally, the development of new forms of finance outside the new-issue market is more important now than ever. It is a paradox that lack of genuine marketability has not prevented a considerable absorption by the institutions of small issues, whether representing the flotation of existing interests or requirements for new money. But there are sharply marked limitations to this; and the fact that the small issue is not a suitable investment for the general investing public is a fundamental difficulty which cannot broadly or in the long run be overcome. The doctrine of continuity does not seem to me to apply as between the small firm and the large; the one sometimes develops from the other, but typically the small company remains a small company, and good reasons can be adduced for this. I do not look therefore to the issue market as the main resource in this field.

The new-issue market has shown both a good deal of plasticity in detail and a considerable fixity of underlying structure. Not even the great switch-over from a primary interest in Government securities and foreign bonds to home industrial issues has altered this. Hence the importance—and this is one of Dr. Henderson's merits—of endeavouring to see this important combination of agencies in its true position in the capital market as a whole.

PIERCY

London.

Consumers' Expenditure in the United Kingdom, 1900–1919. By A. R. PREST, assisted by A. A. ADAMS. Studies in the National Income and Expenditure of the United Kingdom, Vol. III. (London: Cambridge University Press, 1954. Pp. xiii + 196. 42*s*.)

THIS is the third volume to appear in the monumental series of studies on the British National Income and Expenditure edited by Richard Stone. Much of what I said in reviewing the first two volumes in this JOURNAL applies equally to this one; in particular, there is the same high standard of scholar-

ship and the same elegance of production. Even more than in the other studies, the object here is " to provide material which people may quarry at will " rather than to deduce " principles of economic behaviour and motivation." And what a quarry it is! This earlier material, though necessarily less accurate than that for the inter-war period, will prove exceedingly useful, and it makes possible longer runs of comparable figures than hitherto available.

The inevitable limitations must be remembered by those proposing to quarry, even casually. Dr. Prest summarises his main methods by stating:

> " That in general we have had to start with production statistics and then add the quantity of retained imports and deduct the volume of exports. If it is possible to allow for changes in stocks, we then have some points in a consumption series. The difficulty is, of course, that statistics of stock changes are probably the greatest deficiency of all in historical British statistics, and therefore this correction is in the great majority of cases impossible. . . . To obtain the consumption series for all the individual years we have often had to assume linear trends. This may seem arbitrary, but . . demand analysis on data for which no such assumptions were ne ssary shows that trends were a dominating feature of the movements c the various series during this period. From the consumption series d ved in this way a deduction usually has to be made for business usa . . . . To obtain price series we generally had to combine data from a number of different sources, and few refinements . . . were possible " (p. 3).

In the end, many expenditure series are built up from separate runs of price and quantity figures, but some are obtained directly from estimates of expenditure and deflated by a price index to give a volume series. The quantity figures are in simple units, usually weight, and it is rarely possible to supplement them with other series showing changing composition or quality.

Details of expenditure by quantity, price and value are given in twenty-one main groups, nine of food and twelve of non-food expenditure, together with rough estimates for " other foods " and for " other goods " and some adjustment for expenditure of tourists and the Armed Forces. The amount of detail varies from one group to another. Except for such items as the cinema and private motoring, which are inappropriate to the period, the classification is designed to fit in with that adopted in the National Income Blue Books. The comparability remains good even after the changes introduced in the latest (1954) Blue Book.

It is unfortunate that the tabulation bringing together the figures into totals (Table 112) is presented with practically no description. It takes a little effort even to check that the group totals are at market prices rather than at factor cost. Further, the price and quantity index numbers are shown only in total in this table and simply described as " based on the sum of expenditure on all groups except amusements and other goods." This expenditure total rises slightly from 1913 to 1914, for example, and yet both the index numbers of price and quantity fall. It takes quite a little research in the text to discover what has been done.

The price and quantity index numbers are of chained " ideal " (or Fisher) type, so that they should multiply out to an index of change in value. However, even apart from amusements and other goods, they are not comprehensive in their coverage, and they are necessarily rather arbitrary for services. It is a pity that nowhere are all the price and quantity index numbers brought together, to show for what groups they are calculated and to enable comparisons of expenditures to be made in real terms. For changes from 1900 to 1913 the data when assembled are as follows:

Group.	Expenditure (£ millions).		Index Numbers 1913 (1900 = 100).		
	1900.	1913.	Expenditure.	Price.	Quantity.
Food	532	695	131	118	111
Alcoholic beverages	195	182	94	106	87
Tobacco	27	40	149	113	131
Rents and rates *	177	230	130	102	119
Fuel and light	78	81	104	84	122
Other home expenses *	140	179	128	113	116
Clothing	153	210	137	117	117
Reading matter	15	22	145	91½	155
Travel and vehicles *	82	114	140	92	181
Communications *	5	9	172	106	147
Medical and similar services *	51	63	123	93	112
Other services *	115	153	133	111	120½
All above Groups	1,570	1,978	126	109	115
Amusements	32	42	132	—	—
Other goods	33	47	144	—	—
Adjustments	4	7	—	—	—
Total expenditure	1,639	2,074	127	—	—

For groups marked with an asterisk the index numbers are subject to particular limitations, or are less than comprehensive. For example, those for rents and rates are obtained from average rentals and numbers of houses in Great Britain; those for travel exclude buses, taxis and some other forms of transport. Again, " other home expenses " includes domestic service, peculiarly difficult to quantify. It is seen that, in these cases, the product of the price and quantity index numbers can diverge considerably from the value change.

The figures in this table relate to aggregate expenditures, and they should be used in conjunction with the fact that the population increased by 11% between 1900 and 1913. The table then shows up very clearly one of Dr. Prest's main conclusions—that standards of consumption, at least of basic commodities, increased quite slowly in the years before the First World War.

R. G. D. Allen

London School of Economics.

A Study in Trade-cycle History. Economic fluctuations in Great Britain 1833–42. By R. C. O. MATTHEWS. (London: Cambridge University Press, 1954. Pp. xiii + 228. 25*s*.)

MR. MATTHEWS has put ten years of nineteenth-century economic history under a microscope in order to see how the British economy fluctuated in the early days of industrialism. He has produced a fascinating study of the trade cycle that makes the efforts of others in the same field seem half-hearted, slipshod or amateurish by comparison. The facts are assembled with patience and scholarship and are then cross-examined with a thoroughness and analytical skill that wring from them conclusions of great theoretical interest. If the period under scrutiny seems remote, the problems in applied economics which it provides remain highly topical.

In tracing the course of the cycle between 1833 and 1842 Mr. Matthews lays a good deal of emphasis on psychological factors—the revival of confidence in the early stages, the later speculative mania, the reaction as normal standards of business caution re-asserted themselves. But he does not, as one might expect, single out re-stocking and speculation in commodities as the principal symptoms of these changes of mood. Instead, he dwells mainly on new projects, extensions of capacity and fixed capital investment. The argument runs in terms of a steadily mounting consumer demand, with capacity expanding in the boom and in the years immediately following the boom, and a pause to digest the new capacity thereafter. Mr. Matthews readily admits that all sectors of the economy were not equally affected. He shows, for example, that if brick production is a reliable guide to building activity, the peak in new construction came in 1836 in one group of towns (including most of the textile centres), and not until 1840 in another group (including London and most of the south). He allows also for a continued increase in various forms of fixed capital investment well after the peak of the boom in 1836: in railway-building until 1839, in shipbuilding until 1840, in building (after a dip from a lower peak in 1836) also until 1840. Since capacity in other directions (*e.g.*, coal-mines and blast furnaces) was also expanding rapidly after 1836, one may reasonably ask whether total fixed capital investment reached a peak as early as 1836 and in what sense the years between 1836 and 1840 represented a recession.

One may also ask whether fluctuations in investment exercised as large an influence as harvest fluctuations or exports on economic activity. The biggest year-to-year change before 1842 in capital expenditure on railway-building was no more than £3 million, while in shipbuilding the biggest year-to-year change was probably not more than £1 million. Agricultural incomes, on the other hand, represented about 40% of the national income, or £150 million, and although we are unfortunately given no quantification of the changes that occurred, a fluctuation of, say, 10% or £15 million can hardly have been unknown. Mr. Matthews makes an interesting attempt to reconcile the view that the cycle was not dominated by harvest fluctuations with the marked cyclical rhythm of wheat imports, and finds an explanation

partly in the influence of carry-over stocks, partly in the operation of the Corn Laws. He points out that the later thirties were already overshadowed by the long-term trend away from self-sufficiency in food; and there seems little doubt that it was mainly the financing of imports of wheat on an unprecedented scale from 1839 onwards that pushed up interest rates and brought on the slump in fixed capital investment.

In his discussion of fluctuations in exports, which are often given pride of place in explanations of early cycles, Mr. Matthews concentrates on the American market, which was by far the most variable, and gives a lengthy analysis of events there in order to establish how far the boom of 1836 was independent of the cyclical upswing in Britain. He has little to say about exports to the countries of "Northern" Europe (including France) because they show a steady upward trend throughout. Exports to other markets he equates with total imports, excluding corn, and there is an impressive congruity between the curves for these two variables, alike in trend and in fluctuation. This is in many ways a surprising relationship. It would be easier to understand a rough equivalence between imports and exports in trade with the more distant parts of the world, with which triangular settlement was difficult. But even this equivalence would be upset by the triangular settlement that took place with the Far East via the United States; and there must also have been some triangular settlement with other countries via northern Europe. Indeed, it calls for some explanation why exports to Northern Europe after 1837 were so unresponsive to the heavy imports of corn that took place; not all of the resulting deficit can have been paid in gold.

Mr. Matthews issues a warning against too ready an assumption that the fluctuations that took place were primarily in output or consumption, and cites the example of cotton, the consumption of which rose steadily, without a break and at an almost uniform pace, from 1826 to 1838. In this industry, at all events, it seems to have been prices, profits and investment rather than output that fluctuated. Perhaps cotton was exceptional; productivity was rising steeply, output was doubling every decade, export markets were taking nearly 60% of total output and more than half the workers were under twenty. One wonders, however, whether other industries, such as pig iron, that were subject to a similar rate of secular expansion would not show the same phenomena if the figures were available.

The chapter on money and banking includes a defence of the Bank of England against some of the attacks on the Palmer rule that have been made by historians of monetary thought. The rule amounted to little more than a decision against offsetting any decline in bankers' deposits and similar liabilities due to an efflux of gold. Mr. Matthews argues that this rule was fundamentally orthodox, gave rise to a consistent policy and was adhered to, at least in spirit, on all appropriate occasions. He shows that there was a close inverse relationship between the discount rate and the state of the gold reserve, and that the deviations from this relationship were erratic and not, as one might expect, related to the general state of trade. When gold flowed

out and interest rates went up, idle money and money substitutes (including inland bills) were brought into circulation and the supply of loanable funds increased without much check on the demand, except in years when credit became excessively tight (as in 1839). It is also suggested that fluctuations in the state of trade brought about the requisite changes in the money supply without the intervention of a change in discount rates. All this adds up to a picture of great elasticity, both in credit and in money substitutes, and makes it more difficult than ever to understand how the Bank of England got along with a bullion reserve that was about as often below £5 million as it was above and was liable to fall by £5 million within six months. Presumably the international use of the sterling bill gave the Bank some elbow room. But not, to judge from the events of 1839–42, a great deal. Why did it take so long, at this critical time, for high discount rates to bring back bullion and re-build the Bank's reserve? Was it really necessary to force down the level of fixed investment by a prolonged spell of dear money and usher in the forties with a slump?

It is at this point that Mr. Matthews' analysis is, for once, a little inadequate. It would seem, from the figures that he gives, that exports and home investment together were pulling the economy up until 1839 or early 1840. Some check was inevitable after the harvest failure of 1838. But were the short crops of 1839–41 bound to result in a general depression? Throughout the entire period Britain seems to have been a net long-term capital exporter. Might not the necessary imports of grain have been financed through a cut in foreign lending or a little foreign borrowing? Mr. Matthews points out that capital exports to the United States dried up in 1840–42; but he also demonstrates that this brought no reflux of gold, so that the net effect was presumably to add to the troubles of the export industries. What then of Europe? Was the French loan of 1839 not capable of extension? And why, one asks again, were markets on the Continent so inelastic?

Mr. Matthews tries to handle the repercussions of foreign trade on the home market in terms of what he calls " the income balance " (*i.e.*, exports less expenditure by consumers on imports). In the process he draws a distinction between autonomous and induced changes in imports and (with less emphasis) in exports. But it is doubtful whether much use can be made of this distinction in analysing the income balance, for whereas one type of autonomous change that he instances, viz., a harvest failure, leads simultaneously to a fall in real incomes and a rise in imports, a second type, viz., a fall in the supply-price of imports, operates to raise incomes and imports simultaneously. It would have been simpler, and perhaps more illuminating, to look at changes in exports alongside changes in home investment, however approximate, and then examine any factors operating independently on the level of income through changes in consumer spending and the relative attractiveness of imports and home-produced goods.

A. K. Cairncross

Glasgow.

Economic Processes and Policies. By W. J. BAUMOL and L. V. CHANDLER. (New York: Harper & Brothers (London: Hamish Hamilton), 1954. Pp. viii + 690. 45*s*.)

THIS is a book that must rank high among text-books on economics. It covers the usual range of subjects, but with an emphasis on matters of policy that leads to some drawing on welfare economics and input–output analysis. It draws heavily on descriptive material; albeit of the American scene, which limits somewhat its value for the British reader. It takes the student directly to practical problems, so as skilfully to display the uses of economic analysis. It is a model of discerning sifting of the debates of the past to show the student the valuable contributions and not the sterile controversies. It is extremely lucid and highly readable; and one is left in constant admiration at the number of problems dealt with in a manner at once deft, brief and illuminating.

A book of this quality cannot be without its controversial features. The professed emphasis of the authors is on helping the student to *analyse* processes and problems. But it is their exposition of the tools of analysis that may arouse some reservation. Their treatment is varied, and with it the level of sophistication.

Part III sets out the analysis of the determination of national income. One cannot question the very high quality. But are the Hicks–Modigliani diagrams ideally suited as the main exposition of income determination in what aims to be an introductory and elementary text-book? No doubt they have great uses to sum up a discussion which has displayed the Keynesian analysis piecemeal. But the authors have no time for such an approach, and their treatment in consequence seems better suited at this point for the student who already has some of the rudiments of the subject. Then one wonders whether the analysis goes far enough for such a reader. The discussions of policy devote some considerable space to problems of instability. Nevertheless, of the multiplier there is little; and of the acceleration principle, which for all its gross deficiencies for precise interpretation of events summarises something of those relationships between stocks and flows that can so easily produce instability, there is nothing. The reader approaches what is an excellent discussion of stabilisation problems without the analytical equipment to assess the authors' conclusions. Have they, then, wholly avoided providing " the student with ready-made answers "?

This same problem of whether the analytical tools provided are sufficient for the problems discussed afflicts Part V on the composition of output. The problem, however, takes a different form. The elementary analysis of demand, of the firm and of factor markets appears in an appendix. It is easy to see the authors' purpose in this arrangement. In a series of chapters of high excellence they bring the reader straight to the problems so that he can see the purpose of his study, a matter so commonly neglected in elementary text-books. One can argue that the student with his appetite so whetted can turn to the appendix, to which there are ample references, to

find the tools employed in the main body of discussion. For all that, the arrangement has its disadvantages. One suspects that the novice will not be very clear after Chapter 20. He is also less likely to appreciate the underlying unity of method of economic analysis than he would be were the discussions of problems to indicate at the time the relevant tools. It is, after all, a small number of concepts that are constantly being applied in different contexts. As it is, the reader is left with footnote references and the rather lame statement on p. 653 of the appendix: "In this way we indicate the theoretical background for some of the policy discussions presented in the book itself." One profoundly hopes that the student who reads "that long-run competitive output must be greater than the long-run output of the firm under monopolistic competition" (p. 650) will dutifully obey the injunction of the footnotes and turn back for the qualifications.

But these criticisms, and others that may be levelled, are matters of detail. They must not be allowed to blur our appreciation of the overall excellence of the book. There is much to be learned by teachers and students alike from the skill, lucidity and modesty with which Professor Baumol and Professor Chandler have set out their subject.

A. D. KNOX

London School of Economics.

Government Finance. An economic analysis. By J. F. DUE. (Homewood, Illinois: Richard D. Irwin, 1954. Pp. ix + 562. 60*s*.)

THIS volume is very much in the tradition of the typical text-book written for courses in Public Finance in colleges and universities in the United States. In the course of some 550 pages of text most issues normally thought of as being within the subject (and a few which are not usually so reckoned) are worked over. Starting off with a discussion of the principles of government intervention and the actual position of the United States government accounts *vis-à-vis* those of the whole economy, we are taken through the legal powers of taxation in the United States, the principles of public enterprise pricing and the traditional chapter on the principles of taxation. Some parts of this discussion, especially those concerned with the legal bases of United States taxes and the pricing principles of public enterprise, are well done and are a useful summary of these aspects of the subject.

These seven introductory chapters are followed by fourteen on the problems of individual taxes—those on personal income, corporation income, excess profits, consumption expenditure, commodities, gifts and wealth being dealt with in succession. Finally, bringing up the rear we have a chapter on central–local government relations, another on the re-distribution of income through public finance and several on Government borrowing and compensatory fiscal policy.

This book has a good deal to recommend it. The treatment is simple and easy to understand. The order of arrangement is sensible (it is interesting to note that compensatory fiscal policy is demoted from the head of the queue,

where it seemed so firmly ensconced only a few years ago, to the very tail). And, although perhaps not always as rigorous as it might be, the treatment is fully up to date with most of the recent contributions to the subject. No student who has worked through this book thoroughly would be likely to fail his examinations in public finance.

Despite these merits, one cannot really feel that this is a very suitable book for British, or more accurately non-American, readers. One reason is that almost all the discussion is related to United States and Canadian practices. It is reasonable enough that most of it should be. But one would have thought that, for instance, the discussion of block grants from the central government to local authorities might have been enriched by some references to British experience, which is much more relevant in this field than that of the United States or Canada. Similarly, although there are many references to the latest articles and sub-articles in the various learned journals (principally United States ones), the reader of this book will finish it totally ignorant of the fact that, for instance, there was a gentleman called Adam Smith who had something of interest to say on public finance.

Secondly, and perhaps even more fundamentally, this book will appeal to all who like to digest information in a pre-cooked form neatly served on a well-garnished platter. But all those who like a little variety in their fare, all those who believe that a few loose ends left untied can do a power of good in stimulating minds, will not find this sort of dish very appetising.

A. R. Prest

Christ's College,
Cambridge.

Economic Doctrine and Method. By J. A. Schumpeter. (London: Allen & Unwin, 1954. Pp. 207. 15*s*.)

This is a remarkable but not a wholly satisfactory book. It is remarkable chiefly because of the immense erudition of its author, who displays on page after page an astonishingly extensive knowledge of his subject. Beginning with the Greeks, Professor Schumpeter's study is carried down to Marshall, Taussig and Böhm-Bawerk, and the only conspicuous omission is that of Wicksell. Many of the comments on particular schools or individuals are strikingly illuminating, especially for the reader who possesses prior knowledge of the subject. On mercantilism, on utilitarianism, on the German historical school—about which there is not likely to be an over-supply of prior knowledge among British readers—Professor Schumpeter is particularly good, and he is best of all on the English classical economists as a whole. This section contains a detailed discussion of the labour theory of value, which is excellent; there are only two other such discussions in the book, one of the Ricardian theory of rent, and the other concerning the contributions made by the historical school to the general body of economic knowledge.

It is unfortunate that so much has been compressed into so small a compass. In a couple of pages in the first chapter, for instance, reference is made

to no fewer than sixteen authors. Further on in the book Sismondi receives three lines, Cournot less than half a page, Petty less than one page and so on. And yet, desperately brief and allusive as much of this is, the book is amply good enough to encourage the reader to go on, as he should go on, to the massive *History of Economic Analysis*.

Apart from the occasional fuller discussion and apart from the many hints and comments *en passant*, the present book amounts to an oblique discussion of method. The different approaches and the different interests of the various schools are sympathetically outlined, and emphasis is always laid on what the various writers have been seeking to do. Here the author's catholicity of interest and liberality of judgment raise this volume altogether out of the ordinary. He insists on the many-sidedness of economic reality, on the impossibility of its being fully comprehended by any one author, method or school. His intention is to lay bare not only the "heteronomy of economics"—a phrase borrowed from Knies—but to use the device of a historical survey so as to bring out and illustrate the several advantages of the various methods, while advancing his own views as to the precedence of a truly scientific (not a normative or political) analysis set in a framework of social and institutional study. The book shows once again how close to Pareto Professor Schumpeter's position was.

It is a pity that the book has been translated from the German into a language which, while comprehensible, can scarcely be described as English. Thus we read that Ricardo—

> "was often content with approximations with which occasionally he was not satisfied himself. In a way he strangled the vital connection between the value of the product and that of the means of production with his concrete causes which determine the various branches of income" (p. 115).

Yet *Economic Doctrine and Method* remains worth reading, although it must be judged as a whole to be either too brilliant or too brief.

A. J. YOUNGSON

Emmanuel College,
Cambridge.

Newtonian Classicism and Darwinian Institutionalism. A study of change in economic theory. By D. HAMILTON. (Albuquerque: University of New Mexico Press, 1953. Pp. 138. $1.)

WITH this book the University of New Mexico launches a new series of publications in economics. It is a statement of faith and a call in the Veblenian tradition for a revolution in thinking. The author is strongly of the opinion that western economics is a prisoner of Newton. The mechanics of the *Principia* reached into every aspect of western thought, with its static, mechanistic view of the universe. Equilibrium about a norm became, and remains, the dominant mode of economic reasoning. This has meant that political economists, to the present day, have failed to view society as changing in an evolutionary, cumulative way. Further, it has inspired an active

hostility to those who, taking their cue from Darwin, have sought after a theory which stems from the problem of change, rather than the continuous reassertion of norms.

Who can deny the power of the Newtonian cosmology? But in this matter we must distinguish three questions, each addressed to a different kind of student. First, the historical problem—To what degree did traditional economic thought in fact derive its idiom from Newton? Secondly, the economist's question—How far does current economic thought rely upon Newton? And finally, the problem for the student of the theory of knowledge —To what extent is the present state of economic thinking due to a failure of economists to realise the real nature of their own thought processes?

These are all important questions. Mr. Hamilton seeks to answer them from a polemical point of view—in Newton lies stultification, in Darwin life; it is necessary to demonstrate to modern economists the nature of the leading-string which still binds them, condemning them to the sterile elaboration of exhausted concepts while a whole new world of discovery is accessible. In order to liberate the modern mind, strong, unequivocal theses are offered at all levels of discourse. The result is well worth reading—it is, as its author intended, provocative.

The historian will be provoked to wonder whether the evolution of economic thought was really so simple. Surely, in probing at such a depth as this, it is not enough to identify the parent of method alone. To construct a general system of social analysis, two ingredients seem to be required: a method of reasoning, often derived from or related to a cosmology, and some sort of view of the nature of man and his behaviour, derived from metaphysics or psychology. In fact, political economy should honour two great fathers of the enlightenment, Newton and Locke, who worked largely independently and with very little appreciation of the work of the other. Though the author has much to say about hedonism, there is a failure to give Locke an independent existence; the impression is left that the view of man embodied in the classical economics was, like its method, derived exclusively from Newton and natural science. But Newtonian science could not of itself have guaranteed the acceptance of automatism in economic matters; Kant was able to form German thought by his distinction between the phenomenal world, where the classical mechanics operated, and the world of human culture, where they did not.

As to the present state of economics, again there can be no doubt that the shade of Newton is still present; equilibrium is still the leading form of thought, as Mr. Hamilton demonstrates. But to say this is not, of course, to concede that it is a mere *ignis fatuus*. May it not be, that for all its age, it is still a potent tool of analysis, and that when used with the caveats so often laboured by the classics, it yields those short chains of reasoning upon which policy must rely? It is easy to sympathise with those who fear that reasoning in terms of evolving cultures will lead only to demonstrations that everything depends upon everything else, that it will no longer be possible to attain the kind of logical rigour that follows from saying " such are the

assumptions, such are the conclusions," and that, as yet, such thinking yields few clues to the choice of alternative courses of action. But it is excellent that some economists should do their thinking in terms of cumulative change, with economic actors who are themselves both caused and causing, within the matrix of their culture, with emphasis upon technology as the dynamic element. It will be of great interest to see how such scholars deal with the problem of giving structure to their thinking, for however concerned we may be with process, it is difficult to see how understanding can be achieved without categories.

To blame the present relative failure to make progress with the problem of change upon Newton seems somewhat unreal. The leading post-war concern has probably been with questions of growth and process; if a plausible theory was offered in a new form, it seems likely that, far from being strangled by the dead hand of Newton, it would enjoy a vogue in excess of its real merits. It is hard to believe that the great diversity of talent now devoted to such problems is so rigidly confined in thought, when even elementary expositions of economics distinguish between the older equilibrium approach and the newer dynamic aspirations. Indeed, impatient readers of Mr. Hamilton will probably find themselves wondering why, if current theory is in fact so hidebound, some institutionalist does not give the *quietus* to Newton by the offer of an alternative demonstration, rather than the offer of an alternative patron. The answer surely is that it is the inherent difficulty of the questions now being asked, rather than an outmoded and undetected way of thinking, that bars the way.

But for all this, it is occasionally a valuable exercise to lay aside scholarly purism, seize upon two or more archetypal figures and see what can be done by way of arranging the history of economic thought around them. Mr. Hamilton has chosen two which most economists would probably think were remote even from the penumbra of their discipline; his book should be read as a vigorous attempt to relate economic to general thinking, and as a challenge to those who are practitioners or elaborators of narrowly prescribed techniques.

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Studies in Econometric Method. Edited by W. C. HOOD and T. C. KOOPMANS. Cowles Commission for Research in Economics, Monograph No. 14. (New York: John Wiley (London: Chapman & Hall), 1953. Pp. xiii + 323. 44*s*.)

THIS valuable book provides an expository account of the methods of econometric analysis developed by members of the Cowles Commission. Much of its contents has already appeared elsewhere in articles or in a rather indigestible form in Dr. Koopmans' formidable Cowles Monograph No. 10. However, there still remains much that is new or that has developed significantly in recent years.

The description " expository " does not imply that the work is an elementary text-book. Rather it attempts to provide the reasonably well-equipped reader with understanding and insight into the methods employed, the conditions for their validity and the problems as yet unresolved. Considerable efforts have been made to keep the discussion as simple and straightforward as possible, but the core of the book (Chapter VII) is scarcely food for those with only a nodding acquaintance with matrix algebra, despite the sporadic assertions of the editors to the contrary.

There is now general acceptance of the view that the methods of estimation appropriate to quantitative economics cannot be considered in isolation and that attention must also be paid to the manner in which any economic system is supposed to function. A plausible structure of inter-relationships between the variables of an economic system must be set up so that the joint probability distribution of the variables, the values of which are determined by the operation of the system, can be deduced. The aim must be to estimate structural parameters (the parameters of, say, demand and supply relationships), because only armed with a knowledge of these can we predict the probable results of a sudden shift in, for instance, the supply relation due to a specific act of Government policy.

The first chapter on " economic measurements for policy and prediction " by Dr. Marschak argues broadly along these lines aided by a few very simple illustrations. As an opening it is not too successful, since Dr. Marschak is dogmatic and at times also rather condescending. His insistence on the rigid distinction between the technician, who estimates, and the politician, who decides, seems to me to be overdone.

It may often happen that the formal properties of the structure of inter-relationships between variables are such that it is not in fact possible to derive estimates of some of the structural parameters, in which we are interested. Loosely speaking, this is the problem of identifiability, which is discussed lucidly and simply by Dr. Koopmans in Chapter II.

When the values of a number of variables are jointly determined by the operation of a particular economic system, the meaning of " cause " and " effect " is veiled in a certain amount of mystery. Simon tries to help us to peer more effectively into the darkness in a highly abstract discussion entitled " causal ordering and identifiability." The causal ordering of the variables in a system of equations specifies which variables will be affected by interference at various points in the system. Simon shows that there is an intimate connection between causal ordering and identifiability.

Haavelmo's exemplary discussion of " methods of measuring the marginal propensity to consume " has become Chapter IV. It is surprising to find, after all that has been written since, that he never mentions the words " maximum likelihood," that he relies entirely on Markoff's theorem on least squares, and that he is only concerned to derive consistent estimates. It is a pity that the editors did not woo their readers by using Haavelmo's contribution as bait and Chapter I. Chapter V is also a reprinted article but in truncated form. While the " statistical analysis of the demand for

food " was a pioneering venture in its time, its inclusion in this volume seems to make for unnecessary repetition.

The long Chapter VI by Koopmans and Hood on the " estimation of simultaneous linear economic relationships," while excellent in its way, makes fairly heavy demands on the reader. The maximum likelihood method of estimation as applied to the structural parameters of a system of equations is developed in all its glory. The reasons for using this method are explained and also why the method of least squares is equivalent only in certain cases. A rewarding novelty is the stepwise maximisation of the likelihood, first with respect to the covariance matrix of the disturbances for given values of the structural parameters, and then with respect to the structural parameters themselves. This approach is extremely fruitful, as it leads to the least variance ratio principle (and its generalisation) as an intuitive justification for the rather remote appeal of the limited information method of estimation. It helps to explain why the methods of estimation have desirable properties, even when the disturbances no longer have a joint normal distribution.

Next Chernoff and Rubin summarise briefly the less stringent conditions, which must hold, if the methods of estimation are to remain valid. They touch on the effects of leaving out variables, on errors of observation and on non-linear equations.

In Chapter VII and VIII Drs. Allen and Bronfenbrenner return nearer to the earlier simplicity of Koopmans and Haavelmo. They illustrate points of considerable practical importance with easily intelligible examples. Allen discusses the effect on the asymptotic efficiency of the estimator of a structural parameter of ignoring a pre-determined variable. Bronfenbrenner examines the size of the asymptotic bias in least-squares estimates and shows how large it may be in certain circumstances.

Finally, Chernoff and Divinsky discuss at length computational procedures. Four methods are explained: the full information method with unrestricted covariance matrix of the disturbances, the same method with a diagonal covariance matrix and the limited information method for both a single equation and a subset of equations.

The imposing structure of theory which has been erected by workers at the Cowles Commission inevitably arouses feelings of awe and admiration. Yet doubts remain. How far have they succeeded in developing a practical tool of analysis, which takes account both of the limitations of the data and of the fact that time and resources for computation are scarce? How far will investigators using the prescribed methods be able to engage in notable forays on the frontiers of economic knowledge? Time alone will show.

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An Essay on the Economic Theory of Rank. By R. H. Tuck. (Oxford: Basil Blackwell, 1954. Pp. 52. 7*s.* 6*d.*)

The central problem, which Mr. Tuck discusses in this ingenious essay, is that of allocating differently endowed individuals, who are demonstrating their fitness for promotion at varying rates, to their appropriate place in the industrial hierarchy. Each entrepreneur possesses his own individual demand and supply curves for new capital. The more promising his past record, the more new capital he can borrow, other things being equal. An entrepreneur's scale of operation is determined by the amount of capital that he controls. Since the number of immediate subordinates any man can effectively supervise is immutably fixed, a firm's scale of operation determines its requirements of wage and salary earners of various grades.

In any industry, or indeed in the economy as a whole, there exist at any given moment two distinct distributions of economic rank—by economic rank is meant the number of steps of promotion a man has achieved above the level of basic operator. There is, firstly, the distribution of actual rank achieved by existing individuals due to the general process of economic advancement. Secondly, there is the distribution of individuals by rank required if an industry (or industry as a whole) were organised in a single heirarchy of control. These two distributions do not, in general, coincide; normally there are insufficient people of any given rank to control effectively the persons in the rank next below. The economy effects a reconciliation of the two distributions by the emergence of independent firms widely differing in size.

Since a transfer from the ranks of salary earners to those of entrepreneurs, possibly of humble standing, is always permissible, and vice versa, a certain level of income corresponds with each economic rank. The income of an entrepreneur of given rank is not, however, proportional to the scale of operation of his firm, but it will depend on the economies and diseconomies of scale in the industry concerned. With the aid of a certain number of additional assumptions, two important ones being the age distribution of individuals and their average rate of personal advancement, the distribution of incomes can be deduced.

Mr. Tuck applies his theory to examine the effects of a slackening of population growth and to account for the trade cycle. His explanation of the latter phenomenon implies a cyclical variation in the size distribution of firms, but he adduces no evidence to support this contention. He also analyses the effect of nationalisation on an industry, and he concludes that there will result either a distortion of the hierarchy of control or promotion at an excessive rate for the higher ranks. The existence of small independent firms is necessary for the efficient use of the existing supply of entrepreneurial ability.

Mr. Tuck attempts to support his theory statistically by computing theoretical distributions of firm size, for two industries, and of total incomes. At first sight the correspondence between theory and reality appears remark-

able. An examination of his assumptions and method suggest, however, other reasons for this goodness of fit. He uses adaptations of the log-normal distribution with little, if any, theoretical justification, although this type of distribution is well known to give fair fits to distributions of firms and incomes by size. He also allows himself great freedom in the number of parameters that he estimates and on which his theoretical frequencies depend. At least one of his approximations can only be described as heroic.

The freshness and originality of Mr. Tuck's approach to a most intricate problem deserves recognition and encouragement. He will, I hope, continue to improve and refine his model, using what empirical data he can find to support each assumption directly, rather than attempting an *en bloc* justification by curve fitting. His present work remains, however, a pleasing reaction against the assumption of homogeneous labour.

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Colonial Social Accounting. By Phyllis Deane. National Institute of Economic and Social Research, Economic and Social Studies, No. XI. (London: Cambridge University Press, 1953. Pp. v + 360. 50*s*.)

This is an important work of reference in a field in which there is still too little information. The reasons for making national-income studies in so-called backward or under-developed territories are well known and in essence not different from those applying to industrial countries. But the difficulties arising from the peculiarities of economies in which subsistence production is of more real significance than cash transactions and detailed statistical, accounting and social data are woefully inadequate have limited the number of inquiries on which administrators and economists can place reliance. Miss Deane is one of the pioneers in the terrain of national-income studies in the British Colonies, and this full and detailed account of studies made in 1945–48 will go a long way to laying the foundations for future work. Together with the admirable studies conducted by Dr. Benham in the West Indies and Malayan territories and by Dr. Prest and Mr. Stewart in Nigeria, it will help not only to provide basic facts about the particular territories with which it deals but also to clarify the many theoretical and analytical problems which distinguish emergent economies from the fully advanced economies of the industrial countries.

The topicality of the work suffers from the long delay in publication. Figures relating to 1945–48 are, as absolutes, only of historical interest, especially when, as in these territories, there has been a continued and extraordinary expansion of the monetary economy. To take Northern Rhodesia alone, trade measured by exports has increased threefold over the past five years while public revenues have more than doubled. Changes of this order of magnitude and rapidity rarely occur in wider-based economies, and the effect they have on the internal economy must only emphasise the need for

continuous detailed study if misleading conclusions are not to be drawn from out-of-date figures. Nevertheless, the analysis of the economic structure showing the difference between incomes of the different social groups, the limited impact of mineral development on the economic life of the rural areas, the importance of external capital and enterprise and the role of development programmes has value which is not so limited.

Though Miss Deane had, as she acknowledges, the co-operation of Government officials, traders, anthropologists and other social scientists in the field, her work was still that of an individual and naturally enough she had to limit severely the range and scope of her survey samples. Her final conclusion is that, as an experiment in national-income measurement, her study has had but a very limited success. Modestly she states that it has done little more than " collect, sift and discuss the readily accessible evidence." This surely under-estimates the value of her study. It is probably true that the aim of giving Governments an accurate blueprint of the economy as the basis on which decisions regarding general development planning can be taken is far from being fulfilled. This is inevitable. Indeed, the author rather over-emphasises (pp. 7 and 68) the extent to which Governments can influence by planning the course of economic progress. None the less, the collection and systematic organisation of basic economic facts cannot but be helpful in many ways, and this is sufficient justification for the laborious work entailed.

There are some doubtful conclusions. Does it follow that, because the bulk of Nyasaland's national income flows to native residents, capital for economic development must be largely provided by Africans (p. 111)? That, because mining development has not succeeded in raising average living standards above very low levels, they can *only* (reviewer's italics) be lifted by an improvement in agricultural yields (p. 219)? Such an improvement is clearly necessary, but the implication that mineral development is of secondary importance is hardly valid. If Africans very quickly reach the point at which they devote money incomes to luxuries and leisure (pp. 224–5), is the low scale of living due to development " passing these people by " (p. 33) or to choice? The fact that " market " agricultural output is shown (p. 267) to represent less than one-tenth of subsistence output of the Africans throws doubt on the validity of village studies confined mainly to transactions. The evening out of African incomes in the three territories now comprising the Federation, on the other hand (p. 216), seems to suggest a greater influence of the cash nexus than does a straightforward division between subsistence and cash production. The general conclusion on p. 219 that " balanced economic progress in Central Africa depends primarily on the productivity of the African and particularly the African farmer " is hardly more than a truism made platitudinous by the word " balanced," and it under-estimates the contribution of general development to African productivity. It is surely not a fair deduction that the net gain from external investment in Northern Rhodesia is " negligible " because savings of Europeans are exported (p. 217). Does not the attraction of the mines and the

remittances back to African villages from the proceeds of that investment represent a net gain to the economy—or else why do the Africans seek urban and mining employment?

A. EMANUEL

London.

The Scottish Economy. A statistical account of Scottish life by members of the staff of Glasgow University. Edited by A. K. CAIRNCROSS. Social and Economic Studies, II. (London: Cambridge University Press, 1954. Pp. xv + 320. 30*s.*)

THE twenty essays which comprise this volume are exercises in the technique of using statistics to describe and analyse the salient economic and social characteristics of a region. The fact that Scotland has enjoyed "country status" ever since it became part of the United Kingdom has ensured a richer vein of basic data than is usually available for a region and has rendered less formidable the task of effectively defining its economic boundaries. Nevertheless, the perennial problems of inadequate data and of defining the region for purposes of economic analysis are still there, and the authors' treatment of these problems will interest regional investigators faced with more complex versions of the same general problems. There are, for example, courageous and rewarding ventures in the field of estimation of significant aggregates—notably the chapters on national income and the balance of payments by A. D. Campbell and W. M. L. Murray respectively—which break new ground in Scottish statistics and contain a number of object lessons in the imaginative use of scanty data.

It is as a compendium of, and as a commentary on, the quantitative information on the Scottish sector of the United Kingdom economy that this book makes its most effective contribution. The essays cover a wide variety of topics in concise fashion. Their main connecting thread is a twofold comparison—with an earlier period and with the rest of the United Kingdom—which puts each analysis in historical and geographical perspective. The picture of Scotland which emerges from them is one of an industrial economy, "above all, an urban economy, with a scattered agricultural fringe," in which the level of economic activity or of social welfare measured in terms of such indicators as income per head, output per worker, size and quality of dwelling-houses, or sickness rates, lags behind that of the rest of Great Britain.

It is possible to over-emphasise this differential, especially when the comparison is made in terms of the average south of the border rather than in terms of the range of averages exhibited by the various regions of England and Wales. To be below the average for the rest of Great Britain frequently does not signify a ranking below sixth or seventh in an ordering which distinguishes each of the ten standard administrative regions south of the border. Nevertheless, the lag between Scotland and some or most of the regions of England and Wales is sufficiently marked and con-

sistent to call for some explanation. The interpretations which twelve authors put on their various series in order to explain this lag in its different aspects provide numerous hypotheses for further investigation.

It is interesting to note that the indicators do not always point conclusively in the same direction. In terms of output per person engaged, productivity in Scottish manufacture is generally, but by no means invariably, below the average for Great Britain. We have unfortunately no comparative measures of output per unit of capital employed. In terms of gross output per acre of crops and grass, agricultural productivity in Scotland in 1950–51 was lower than that for England and Wales. On the other hand, in terms of gross output per person engaged (at the time of the 1951 Census) in agricultural, horticultural and ancillary occupations, Scottish agriculture seems to have been more productive.

But an interesting paradox, to which the authors offer no firm explanation, emerges from the estimates of the Scottish share in United Kingdom incomes from property. There is a great deal of evidence to suggest that total personal income per head for Scots who are normally resident in Scotland is below the average level for England and Wales. On the other hand, if it is assumed (as is tentatively assumed for the purposes of the national income calculation) that the Inland Revenue " analyses of personalty " assessed to death duties provide an indicator of the proportion of capital in Scottish ownership, Scottish savings per head are or have been well above the level south of the border. Can it be that Scottish savings behaviour conforms so admirably to its legendary fame?

It is true that the value of estates passing at death reflects past rather than present savings behaviour. However, A. D. Campbell's estimates of national income suggest that throughout the period 1924–48 Scottish income per head never rose above 94% of the United Kingdom level and fell as low as 86% in the slump of the 1930s. His calculation of a nine-year moving average of Scottish estates, expressed as a proportion of the value of British estates, on the other hand, gave values of 12% in 1944 and 11·8% in 1948, in relation to a population which was 10·6% of the Great Britain total in 1948. If these figures are truly significant in this context they suggest a relatively high rate of savings in the past, if not in the present.

The chapter on consumption does not throw any light on the other aspect of this hypothesis by attempting to gauge the Scottish propensity to consume, although it provides evidence of a relatively high rate of expenditure on entertainments and a relatively low rate on rents and purchases of houses. 1950 Census of Distribution results (which were presumably not available when these essays were written), on the other hand, suggest that the Scottish propensity to consume may be even higher than that for England and Wales. Average sales in the Scottish retail and service trades, expressed per head of the population of Scotland, were 99% of the average for Great Britain as a whole, and were higher than the average for any of the English and Welsh standard regions except London and south-east and South. Retail sales do not cover the whole of personal expenditure on consumption, but they cover

enough to throw some doubt on the proposition that the Scots show an abnormally high propensity to save.

The omission of a chapter on savings and capital formation is indeed the major conspicuous omission from this volume. Possibly the available data were too scanty to justify the separate treatment of that difficult topic in what is essentially an introductory symposium. It may be one of the trails which, because it demands considerable first-hand research, has deliberately been left open for future exploration. This volume is the second in the new series of publications sponsored by the Glasgow University Department of Social and Economic Research. It is agreeable to suppose that we may expect a continuing series of monographs of the same sound standards of scholarship and interest as the first two. We may hope that a study of the Scottish capital account stands high in the list of research projects envisaged by the Department as part of the material for its series of monographs.

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A Concise Economic History of Britain from 1750 to Recent Times. By W. H. B. COURT. (London: Cambridge University Press, 1954. Pp. viii + 368. 21*s.*)

ALL those concerned in the study of economic history must have looked forward with rare interest to Professor Court's own sequel to Clapham's *Concise Economic History of Britain.* General economic histories of Britain appear with a frequency which is almost wearisome, but a worthy successor to Fay's *Great Britain from Adam Smith to the Present Day* has not yet been found. Is Professor Court's book what is wanted?

It is abundantly clear that this is a work of erudition and authority. Professor Court appears to have read everything that matters and to have reflected upon everything. The coverage is wide; the information extensive accurate and detailed; the judgment balanced and mature. The author has rightly treated the study as one in economic development, and his approach is distinctive in the emphasis laid upon investment. The text of the book, so to speak, might be given in the author's own words, " National income rises, roughly speaking, with the increase of new capital invested " (p. 165). Sometimes there seems too little awareness of the possibility that national income may rise for other reasons than the undertaking of net investment; but obviously the approach is a good one, and the social and " philosophical " circumstances favouring investment are happily not neglected.

Beyond this individuality of approach, however, Professor Court's treatment must be acknowledged to be prosaic. This does not seem to be an accident. Outstanding events are put by the author severely in their place, and are merged into the even flow of the narrative. The construction of the canals is dealt with in little over a page. The great steel inventions, although producing " a genuine revolution " (p. 220), are dealt with in less than half

a page. In a sense, this is right. The " great " events of economic history seldom seem great at the time. Economic life goes on, washes over them, absorbs them. There is little commotion, little fuss. Even the most rapid adjustments take years, and the disturbances which they cause are seldom on the surface. In a way, therefore, Professor Court's method is the right one. As a depiction of the march of events his work is not open to any but detailed criticism. But as an explanation of development it is not so satisfactory, precisely because the reader's attention is inadequately directed to those changes and innovations which proved, in the end, important and significant.

This quality of flatness in the narrative is emphasised by two other peculiarities of treatment. First of all, there is only one table of statistics in the whole book. No doubt these are often overdone. Eighteenth-century and most nineteenth-century statistics have to be used with care, and they are for the most part wretchedly inaccessible (Professor Court himself makes a plea, which deserves support, for their official collection). But statistical tables, besides leavening a lump of prose, can add a useful precision and clarity to the economist's verbal argument and description, and it is discouraging to see a book at a higher than elementary level reverting to purely verbal means of exposition. Secondly, the division of the book is into only two parts: from 1750 to 1837; and from 1837 to 1939. The experiment having been made, there does not seem much to be said for it. Clapham, cautious as ever, once remarked that, " In economic history starting and finishing points are always hard to find. But it seems likely that 1914 will remain a recognised finishing point." In a way, Professor Court's treatment hardly implies that 1914 was not a finishing point, for to the inter-war years he devotes a mere twenty pages, so that his book is, in effect, not much more than a study of the years from 1750 to 1914. But the arrangement cannot be called a successful one. The inter-war period cannot be dealt with in a meaningful way in twenty pages; and to include it at all in the same section as the years from 1837 to 1914 gives a spurious impression of continuity, whether we believe that " the division " came in the 1890s, or was caused by the first war, or by the final abandonment of the gold standard, or by whatever else we please. No doubt no division here is entirely satisfactory. But, if it comes to that, neither is 1815, nor 1830, nor 1837, nor 1851; least of all, perhaps, 1837.

These criticisms do not detract from the many great merits of this book. But they do leave one with the feeling that Professor Court could have written a much more useful book. Would a much more useful book, however, very much resemble this one? The answer would seem to be no, and Professor Court's work itself supplies the reasons. For in stressing the importance of " a commercial view of property and income " (p. 172), and in emphasising the significance of changing international economic relationships (in a manner reminiscent of Marshall) Professor Court has begun to strain against the bonds of the conventional national economic history. When economic history is the history of economic development, are we any more concerned with the mechanism of change than with the motives and the origin of the motives

which give rise to it? When international trade plays a vital part in economic growth, can we very usefully study national economies in isolation? The answers to these questions are not clear, but they are very important. Professor Court, by adopting the orthodox form of text-book but using a more up-to-date approach, has made the need for such answers stand out more clearly than before.

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Maturity and Stagnation in American Capitalism. By J. STEINDL. Oxford University Institute of Statistics, Monograph No. 4. (Oxford: Basil Blackwell, 1952. Pp. v + 248. 30*s*.)

THE main theme of this book is the alleged tendency toward stagnation in the American economy. Dr. Steindl believes that in the decades preceding the nineteen-thirties the United States was moving gradually into a condition of stagnation which became observable to the naked eye after 1929. In American manufacturing the wage-share in value added is said to have declined from the eighteen-nineties on, especially in the oligopolistic industries. The author suggests that the oligopolistic policy of keeping prices and profit margins high relatively to current costs is responsible for the gradual lowering of the rate of new investment below full-employment savings. The present performance of the American economy he would obviously have to attribute to defense expenditures.

In the reviewer's opinion, Dr. Steindl's interpretation of statistical data is often tenuous. The wage-share behaves differently from his expectations in four of his nine markedly oligopolistic manufacturing industries, and this is explained away by arguments which do not seem very plausible (pp. 81–4). As for manufacturing as a whole, Dr. Steindl shows that the share of wages declined in the period 1899–1937, but if the reader puts together two tables in the book he discovers that the share of employee compensation, consisting of wages plus salaries, did not decline (pp. 76 and 86). It is conceivable that Dr. Steindl could have obtained a mild decline in the joint wage–salary share in manufacturing if he had selected a period bordered by different dates. But he could scarcely have established the same tendency for the economy as a whole. Dr. Steindl's readers should be reminded of the fact that during his period of observation manufacturing accounted for less than one-fourth of the American national income.

From other sources we know that in the economy as a whole, employee compensation as a percentage of national income showed an approximately horizontal trend from 1920 to 1929. Subsequently, there was a *rise* in the share, although if we exclude the effect of changes in the composition of output there seems to have occurred practically no change from 1929 to 1950. There exist indications that prior to 1920 the relative share of employees also rose, even if we eliminate that part of the change attributable to the growing

weight of employees in the labor force. Such statements become, of course, increasingly hazardous as we move back in time. But what matters here is that for the economy as a whole there exists no reason whatsoever to assume a downward trend in labor's relative share during the period with which the book is concerned. On no reasonable interpretation can such a suggestion be derived from estimates of the Department of Commerce, of Kuznets or of King.

What about Dr. Steindl's belief that yields per unit of business capital declined from the turn of the century to the nineteen-twenties, and that new investment was losing its profitability? Here again, certain indicators point to a rise rather than a fall (pp. 151–3), but Dr. Steindl adds various explanations, and he argues that in reality there was a fall (pp. 171–4). This may be so, although the evidence is quite inconclusive. *If* there was a fall in yields, then this reinforces the presumption that there was a mild rise in the share of labor. For neither Dr. Steindl nor any other investigator has inferred from available materials that the stock of capital (Dr. Steindl's net capital) per unit of output would have risen from the turn of the century to 1929. Dr. Steindl concludes, probably correctly, that this ratio was about the same at the end as at the beginning of this period (p. 191). Denote the capital stock by V, output by O, property income by P; then, whenever V/O does not rise, a fall P/V expresses a fall in P/O. It is conceivable that, coupled with a fall in P/O (with a *rise* in the labor share) there occurred a moderate decline in " yields " defined as property income per unit of existing capital. Yet even if this should be the case, the argument that insufficient profitability during the nineteen-twenties heralded an era of stagnation remains far-fetched; and if someone nevertheless believes himself to have discovered a danger signal at this point, then, in contrast to Dr. Steindl, he is really suggesting that labor income was eating into profits to a dangerous extent.

Yet whatever the reader's reaction may be to Dr. Steindl's argument, the problem of continued growth or imminent stagnation stays controversial—to some extent a matter of faith or at least of temperament—as has been the case since the time of the classical economists. Most of us believe that a great deal depends on the race between diminishing returns and improvement. However, Dr. Steindl does not look at long-run development from this point of view. For the sake of illustration rather than statistical testing, he develops a theory of imperfect competition, and also an aggregative dynamic model. These direct attention not to the need for offsets to diminishing returns but to entirely different limiting factors. Considerable importance is attributed to the dependence of new investment on profits, via certain structural parameters. What is the nature of this relationship? Internal accumulation (reinvested business savings) are viewed as depending on profits, and a further parameter links total business capital to internally financed business capital. If the ratios gearing total investment to profits bear the proper relation to various further structural parameters, including the propensity to save out of personal income, growth will be self-perpetuating. This is because more profits lead to more investment, and more investment

leads to more profits. However, a shift toward oligopoly lowers investment relatively to profits, and further difficulties develop because outside savings do not diminish correspondingly. Therefore, oligopoly leads to insufficiency of new investment relatively to full-employment savings.

In this framework there is little room for the analysis of relative resource-scarcities and of the processes by which diminishing returns have become largely offset over a long period of economic growth. Investment is assumed to create enough profits if profits give rise to enough investment. The author is aware of the fact that this *implies*, among other things, a sufficient rate of overcoming resource-scarcities by technological and organisational improvements. But he simply suggests that " technological innovations accompany the process of investment like a shadow " (p. 133).

Readers of this book must use their own judgment and information for discovering those sections of the analysis which are legitimately controversial. They will find these sections challenging and thought-provoking. But uncritical reading of the book can be very misleading.

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Big Business in a Competitive System. By A. D. H. KAPLAN. (Washington: The Brookings Institution, 1954. Pp. xii + 269. $4.00.)

THIS book is written with the object of forming judgments and correcting current attitudes. It has thus a very definite bias. This bias lies both in the general plan and the emotive use of words.

Dr. Kaplan says that the " chief aim of the study is to explore those aspects of big business participation in American industry which may reveal whether or not it is compatible with the objectives of competitive private enterprise " (p. 1). This is very near to trying to say whether big business is a good thing or not, and this question is one which can hardly be answered in general terms, as big business is not homogeneous, and its effects vary from situation to situation. Dr. Kaplan, however, deals in general terms and, in addition, he excludes many of the problems by looking at the very long period only. This leads him to give great weight to change, innovation and new products, and to emphasise the impermanence of given monopoly situations. He argues that big firms are peculiarly capable of innovation and that the competitive drives are mainly towards further progress. He claims that this progress causes secular price reductions which are relatively large compared with the downward pressure on prices of atomistic competition. Further, the development of new products is so important that freedom of entry into "industries " is not a major question. Thus we have a picture of large firms giving rise to great progress and making the normal short-period considerations about the role of competition comparatively unimportant. The picture drawn by Dr. Kaplan may be true of many firms and industries, but very much more study of individual big business is required before it can be accepted as the general rule.

Statistical analysis is used by the author to make two points. Firstly, that big business occupies an important but minor fraction of the whole economy: its proportion of total assets is growing only gradually and its proportion of total income is probably declining slightly. Dr. Kaplan maintains that this shows that there is still plenty of scope for individual enterprises. Secondly, the ranking by size of total assets of the 100 largest industrial corporations at various dates shows that there have been considerable changes. Dr. Kaplan calls this " mobility of business leadership," suggests that this shows that competitive forces are at work, and concludes that " positions of business leadership as reflected by a place among the 100 largest appear from the record to have been on the whole unsure and maintained with great effort " (p. 141). He also gives the impression that changes in ranking are a measure of success in the competitive struggle, but surely they are equally a measure of changes in the relative importance of different industries. In any case, changes in the ranking of firms in general can give little indication of whether there is competition in any particular industry.

Dr. Kaplan's general conclusion follows easily: " Big business has not merely been kept effectively subject to a competitive system; on the whole it has also made an essential contribution to its scope, vitality and effectiveness " (p. 248). The value of the book does not lie in this conclusion, which was only to be expected, but in the emphasis laid by Dr. Kaplan on dynamic considerations when judging the performance of firms. It is unfortunate, nevertheless, that he does not discuss more fully his justification for exclusive emphasis on these considerations. However much one may recognise the importance of the very long period, it must be remembered that big businesses may have considerable disadvantages in particular industries at particular times: all industries are not equally dynamic and all innovations do not necessarily come from big business. As it stands, the book gives little help to those who are trying to assess the merits of particular cases.

There is little that is completely new in this book. It is, for the most part, an extension of the ideas of Schumpeter, but many interesting points are made by way of illustration. Reading the book involves a continuous effort to avoid the tyranny of emotive words. It is doubtful whether the effort is well rewarded.

P. Lesley Cook

Cambridge.

The Growth of Integrated Oil Companies. By J. G. McLean and R. W. Haigh. (Boston, Mass: Harvard Graduate School of Business Administration, 1954. Pp. vii + 728. $12.)

This big and expensive book illustrates the advantages that American investigators of business have over British economists. The authors give detailed figures describing 106 companies producing and selling almost all the oil, and owning 94·7% of the refining capacity in America; no significant series of data appear to have been omitted, and the figures, whether they be of domestic sales, crude oil output, refinery runs or of foreign production and

imports, cover, in most cases, almost all the history of the companies. There is, in addition, for seven major companies, an impressive body of figures of cost breakdowns, sales, product varieties, oil reserves and prices, which are reproduced in numerous tables, charts, diagrams and maps. All this material is attributed specifically to companies, who have not only supplied the statistics but have co-operated in giving descriptive information with which movements in the statistical series can be elucidated.

Unfortunately this double-columned factual plethora drowns the original thesis, which is that vertical integration is usually due to the ebb and flow of profit opportunities. A description of the present structure of the industry leads into an analysis of the growth of integrated companies, laying emphasis among many factors on the pressure of crude oil output before conservation laws were enacted, and the influence of Standard Oil, whose horizontal refining combination was a response to the chronic instability of the industry. This is followed by an exhaustive analysis of the ebb and flow of profit opportunities at various levels of the industry. "We conclude . . . that vertical integration in the oil industry has been significant as a means of providing protection from profit fluctuations in the separate phases of the business and not as a means of precipitating those fluctuations and thereby gaining competitive advantages over non-integrated firms" (p. 180).

In the last chapter of this section, on the "fluidity of integration patterns," the authors try to discover the causes of structural adjustments in the patterns of company organisation; the detail is perhaps more illuminating than the rather obvious conclusions. ("A company's integration pattern at any given moment may thus be regarded as the net solution of the whole matrix of business problems which the management has faced prior to that date.")

The economist who is prepared to use the book as a quarry can learn much about the organisation and growth of American oil companies, but one hopes that the authors will produce a shorter work, stating clearly the context in which the industry operates, which will require less effort by the reader. The present work is an unsatisfactory compromise between a reference book and a monograph.

JOHN VAIZEY

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The World Wheat Economy, 1885–1939. By W. MALENBAUM. (Cambridge, Mass.: Harvard University Press (London: Geoffrey Cumberlege), 1954. Pp. vii + 262. 48*s.*)

THE origin of this book was a Ph.D. dissertation submitted at Harvard University. This no doubt accounts for the form in which the subject is here presented, notwithstanding a certain amount of new material. It is not a history of the most important half-century in the evolution of the world's wheat economy, though certain episodes are given a brief historical summary. Nor is it addressed to the general reader. It is primarily a book for the university student, and for the student of economics rather than of agriculture.

By taking a fairly long period of time before the war Dr. Malenbaum's objective is to isolate, in the light of the statistical and other material available, the fundamental factors which explain the pre-war changes and which contributed, in his view, to a persistent tendency towards over-production, a growing disparity between supply and demand.

In a brief summary of the pre-war wheat position, particularly in the 1920s and 1930s (for little space is given to the rise in prices after 1896 and its economic causes), the author is mainly concerned with the growth of wheat surpluses, their effect on the incomes of American farmers and those of other exporting countries, the impact of surpluses on world prices and the measures to assist farmers adopted both by exporting and importing countries. In spite of the years of depression, poverty and hunger during the thirties he takes the view (commonly held) that the large carry-overs of these years were due to an expansion of production, not to a decline in consumption; indeed, wheat utilisation for all purposes increased both in total and *per caput*.

With this at the root of the problem Dr. Malenbaum examines statistically the separate factors determining world supply and world demand. Thus, on the supply side the basic relationship is the close correlation between the growth of production and the expansion of acreage in the world as a whole over the greater part of this period. A statistical analysis follows, of the acreage responses to certain influences, including changes in prices (and in " deflated " prices), in farmers' incomes, production costs, in political activity by governments. Other conditions also considered in relation to acreage trends in the major exporting countries are the growth of population, immigration and the extension of railway mileage. The author takes the view that the increase of wheat production in these new territories was an inherent part of their general economic growth rather than a response to world demand, hence a contributory cause of the persistent " imbalance " between world supply and demand.

On the demand side, a similar section treats of " Demand responses." Wheat is used for human food (the largest element in total utilisation), for animal feed, for seed and for industrial purposes. The elasticity of demand for human food, and for other uses, is examined statistically, based mainly on data compiled in the United States, with a result that a greater elasticity is shown for " other uses," notably animal feeding-stuff in the United States, than for human food. Again, taking the whole period covered by the study, a comparison of the acreage " necessary " to produce the wheat required for human consumption and seed, with the actual acreage sown, indicates that the amount available for non-food uses has tended to increase more rapidly than that required for human consumption " at least after the turn of the century." It is suggested that this production in excess of the demand for human food has been the principal reason for " the continuous decline in the real ' value ' of wheat over the fifty-odd year period considered in this study."

Dr. Malenbaum's careful treatment of the whole subject with which this book deals cannot fail to have its statistical and economic interest. Nevertheless, it is difficult not to be left in doubt as to what conclusive inferences or

what guide for the future can be drawn from the statistical analysis, particularly of the various economic responses, when applied over so long a period of the past (perhaps the most exceptional in agricultural history); a period, moreover, during which the technique of wheat production was itself undergoing rapid change; in the old world, for example, the development of mixed farming on limited land, with wheat as one of the products of a system of crop rotation; in the new world a rapid extension of specialised farming, with wheat (in suitable areas) as its primary or often its only product.

The book ends with a useful summary of the various pre-war attempts at international action and a short account of the failure (meaning the failure to maintain or raise the price of wheat) of the international wheat agreement of 1933; it includes a reference to the problem of United States action in the international field designed both to help under-developed countries and assist in the disposal of excessive surpluses.

Dr. Malenbaum has certainly something to add to the already voluminous literature of wheat, yet it seems a pity that having served, so to speak, its immediate academic purpose, a work of this kind, bearing this title, could not have been expanded so as to cover the next fifteen years (years of rapid change) and to have included in particular a section on international trade in wheat, including the causes which lay behind the shifts in production and changes in the destination of exports. It is the experience of recent years rather than of the more distant past that will usually be looked to for a solution of the problems of the world wheat economy which still remained unsolved.

R. R. ENFIELD

London.

An Introduction to Trade Unionism. By G. D. H. COLE. (London: Allen & Unwin, 1953. Pp. 324. 18*s.*)

Power in Trade Unions: A Study of Their Organisation in Great Britain. By V. L. ALLEN. (London: Longmans, 1954. Pp. 323. 25*s.*)

PROFESSOR G. D. H. COLE's new text-book of trades unionism is sufficiently recommended by the repute of its author. Any mainly contemporary description of a developing movement must lose some of its relevance in time. The British unions, however, may now be entering—after the rapid recent growth of their membership and influence—a period of relative stability. Professor Cole's account is thus also well timed.

What has most drawn recent attention to the unions is a suspicion that their consolidation has entailed an internal malaise. This is evidenced, on the one hand by a reported apathy of workers towards their unions' representative processes, and on the other, by the frequency of strikes conducted without the support—in major cases, against the advice—of official union leaders.

This problem gives Mr. Allen's book its immediate interest. The substance of his study is contained in the three chapters (and several appendices)

of its second part, which analyses the machinery of central government in 127 organisations commanding the great majority of union members. The analysis is largely formal, elaborated in terms of the rules constituting the unions' policy-making assemblies and defining the appointment and powers of their executive committees and principal officials. But in one chapter the merely constitutional status of General Secretaries is illuminated by both biographical citation and statistical history, and this, in particular, is excellently done.

There are no surprises in the factual part of Mr. Allen's study. Its main effect is to detail and tabulate what is broadly known rather than extend it. Such a statement is nevertheless an essential preliminary to the wider discussion. Mr. Allen's, though admirable, is not complete: the powers of local and sectional organs and officials, of branch committees and shop stewards, are barely touched on. But in this area one gets beyond the union rule-book into a less manageable field of material: if Mr. Allen had left matters there, he would have done well enough.

He has, however, minimised the incompleteness of his account: "... the control of funds and the negotiation of agreements lie mainly in the hands of central officials—they possess organisational control." This statement is hardly accurate. In important unions—like those of the miners and cotton operatives—local bodies have a substantial control of finance; while wages in many industries (like engineering and the docks) depend as much upon the activity of shop stewards and local officers as on central agreements.

This partiality, however, is essential to the *first* part of Mr. Allen's book. Here, he is apparently concerned to answer those who discern a tendency to bureaucratic rule in British unions. And he wishes to do so by accepting that analysis—which his own material neither confirms nor denies—but rejecting its critical inference. His argument is performed at length: its gist, however, is that trade unions are not to be tested by the standards of political democracy. They are voluntary societies, which workers join to secure material improvements. In no such societies do the generality of members take an active part. They are interested only in results, and results—in unions as in other large organisations—are best secured by a bureaucracy. If its efficiency does not satisfy the society's members, they leave. The true test of the unions' effectiveness is thus their membership.

The argument is ingenious but unconvincing: union memberships are clearly more affected by other factors—like the level of employment—than the officials' competency, and provide small index to the latter. But it also compels Mr. Allen to represent compulsory trade unionism as both abnormal, and involving a bureaucratic despotism over the worker. These propositions seem quite defective.

Trade unions tend—as Mr. Allen recognises—to make membership compulsory whenever they are strong enough to do so. Professor Cole explicitly rejects their description as "voluntary societies." The Webbs considered compulsion to be both coeval with trade unionism and quite consistent with the worker's liberty; their discussion still provides a sufficing comment on

Mr. Allen's theoretical argument. To that, two points of common observation. Among manual workers, compulsory union membership is widely enforced, not by decree of central union bureaucracies but by the rank-and-file's refusal to work with non-union labour. While their dissatisfaction with official union policies is usually expressed, not by a lapsing from union membership but through " unofficial " movements or (in the extreme case) the formation of " breakaway " unions from the dissidents. These twin principles are remarkably illustrated by an incident of 1952's great dock strike, when a section of London dock-workers, having participated in the stoppage despite their union, renewed their strike to compel certain non-members to join it.

Compulsory union membership is symptomatic only of the collectivist nature of union democracy, and is irrelevant to the latter's present problem. It *is* relevant that some unions—like certain printers' societies—display (in a large assumption of administrative work by voluntary officers, the important role of lay assemblies and high voting figures) an active participation by their members which, if by no means overwhelming, compares well with political forms. While in other unions, a low degree of membership participation is paralleled by powerful " unofficial " movements.

For this disparity comparative study might suggest reasons other than the differing character of union memberships. Constitutional differences will play a part, though Mr. Allen suggests little of what that may be. The more important factors, however, are likely to be of another kind. Professor Cole, for instance, has (in an appendix—he does not otherwise discuss the problem) a revealing comparison of the itemised working expenditure of two great unions. Such things as the size of union branches, and whether union organisation is based upon the work-place or the locality, might also prove significant. Of especial importance is likely to be the extent to which a union's members form a coherent and conscious sectional interest. However successful the great general and amalgamated unions in extending collective organisation, they seem to encounter trouble as soon as distinct groups of their memberships become stable and aware both of their sectional identity and a minority standing.

Mr. Allen is right, however, to emphasise that collective organisation is not an object in itself. What is also relevant is the extent to which it conveys to workers a sense of influencing everyday industrial management. Perhaps most interesting in Professor Cole's book is its concluding reformulation of his own views on " workers' control." Faced with the practical issue of their relation to nationalised industry, British trade unions mostly abandoned the claim to direct representation in management. It involved assuming the responsibility of the employer, and this they could not reconcile to their freedom to protect the employees. To that dilemma, Professor Cole now suggests two solutions. First, a system of representation formally independent of the unions, through which workers might assume a collective responsibility for the conduct of particular establishments and a share in the appointment of higher managers. It may well be a failure of nationalisation

that it has not experimented in novel forms of management. But it is difficult to regard this proposal as currently more than a wistful gesture to the principles of Gild Socialism.

More cogent—and of *general* application—is a second suggestion: that unions extend the scope of collective bargaining—now conventionally (and arbitrarily) limited to wages and certain related matters—so as to modify those " managerial functions " the exercise of which workers may at present influence only to the small extent that " joint consultation " is effective. If the fixing of wages and conditions shifts still more to remote central boards and tribunals, the unions will have the more need to demonstrate their effectiveness in the work-place. But Professor Cole does not ask how far centralised bargains, with the elaboration, defence and ritualistic adjustment of which union leaders are so pre-occupied, now serve either the best interest of workers or the internal health of their organisations.

H. A. TURNER

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Nationalisation in Practice: The British Coal Industry. By W. W. HAYNES. (London: Bailey Bros. & Swinfen, 1953. Pp. xviii + 413. 32*s.*)

THE body of Professor Haynes' doctorate thesis is a study of industrial relations and administration in the nationalised coal industry. To this he has added several chapters of introductory material, mainly historical, and, at the end, two chapters on the economics of the industry.

These additions are probably the least satisfactory parts of the book. The introductory chapters are designed mainly for American readers, and they may well benefit from Professor Haynes' calm and sensible exposition. British readers, however, will find some of what he writes too simple-minded (for instance, a two-page outline of British socialist philosophy), and be annoyed by errors (for instance, a muddling of the I.L.P. and the Labour Party on p. 62). The economic chapters present a useful, but not very penetrating survey. Most of the criticisms of *Plan for Coal* are now well known, but perhaps others have not placed sufficient emphasis on the argument that it is unrealistic to expect wages to be tied to productivity in an industry facing deteriorating physical conditions. On the other hand, Professor Haynes' enthusiasm for price regulation by tribunals is unlikely to win much support. The general reader still lacks a good outline of the nationalised coal industry, and, in particular, the economics of the industry. The student may glean a good deal of information from this book, but for historical background and serious economic analysis he should be advised to turn elsewhere.

Although the chapters on industrial relations put together a considerable amount of material and contain an eminently sensible discussion of joint consultation, they are rather disappointing. The description of the organisation of the National Union of Mineworkers and the account of union–board relationships in the areas and collieries are particularly weak, and nowhere does Professor Haynes penetrate very deep.

The book is redeemed and abundantly redeemed by its chapters on administration. The Board's official line of command runs from Coal Board, through Division and Area, to the colliery. This neglects the interposition of Sub-Area Managers or Agents, or both, between Area Manager and Colliery Manager. If the task of the Colliery Manager is to be understood, this and other aspects of organisation within the Area cannot be ignored. Professor Haynes has little of value to add in his description of central organisation. (He even omits the power to appoint senior officers and divisional boards from his list of National Coal Board functions.) But this is far outweighed by the fullness of his account of Area Organisation and his analysis of its effects on the Colliery Manager. Everyone knows that the position of the Colliery Manager has changed under nationalisation, but no one has before described so clearly just what the changes have been, and how Colliery Managers have reacted to them.

On the more hackneyed topic of decentralisation Professor Haynes gives form to his argument and strength to his conclusions by taking the functions of management one by one and attempting to determine how far decentralisation can be applied to each of them. As a result of this, and of his study of Area organisation, he emerges as a moderate decentraliser, anxious to heighten the prestige of Colliery Managers so that they may be " kingpins " of the industry, and highly critical of " lack of clarity " in organisation.

In his concluding chapter Professor Haynes tries to make general judgments about the results of nationalisation, but again it is his remarks on organisation which command attention. If he had avoided the temptation to cover the whole field of coal nationalisation, and concentrated on administrative matters, this could have been a first-rate book. Even as it is, its virtues outweigh its faults.

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Wirtschaft ohne Wunder. Volkswirtschaftlichen Studien. Edited by A. HUNOLD. (Zurich: Eugen Rentsch, 1953. Pp. 359. DM. 11.50.)

A NUMBER of economists, mainly from the Continent of Europe, have joined hands to show that there is nothing miraculous in a prosperity achieved in defiance of planning and monetary manipulation. The first section of their symposium, " Foundations," contains an article by President Einaudi on saving and investment, an essay by Professor Hayek on the rise and decline of government by law, a study by Professor Roepke of the old and new economics and a thesis by Professor Ruestow on social market economy *versus* Communism and Bolshevism.

The second part, " Policy," deals with the post-war economic policies of Belgium (Professor Baudhuin), Germany (Professor Erhard), the United States (Dr. Harry D. Gideonse), Austria (Dr. Franz Nemschak); and winds up with " a natural explanation of a miracle " by Jacques Rueff.

A third part deals with specific problems. Dr. Paolo Baffi analyses and compares the recent monetary policies of Germany and Italy; Professor F. W. Meyer, the foreign trade of Western Germany; Dr. Carlo Moetteli, trade unions and economic order; Dr. Rudolf Mueller, from collapse to background and beginnings of monetary reform; Dr. Volkmar Muthesius, faults in Western Germany's currency policy; and Professor Erich Welter deals with education in economics.

The arrangement of the volume is not wholly satisfactory. Professor Hayek's brilliant paper goes beyond its range, and Dr. Gideonse's finding that the American competitive system has digested a good deal of intervention illustrates the earlier "American miracle" better than its so-called German successor. Seven out of the fifteen papers deal with Germany, whose recovery after six years of war and three years of deliberate industrial destruction was indeed astonishing. Unfortunately there is no study of Switzerland, whose natural resources are limited and whose national market is small—those who advocate a larger common market usually mean a protected market—nor of the Netherlands, whose recovery after their heavy losses in Europe and overseas is almost as instructive as that of Germany.

All writers give well-deserved credit to Professor Erhard, the German Federal Minister of Economics. The warmest tribute to him comes from M. Rueff of France in his concise analysis of the so-called miracle, and of the conditions which made it possible. Fifteen years of planned economy had brought Germany near starvation. Bountiful supplies of cheap money showed her that this cheap money was cheat money. Having gone through near famine, she was not subject to that fear of plenty which vitiated full-employment policies elsewhere. She had learnt that inflation perpetuates scarcity, and that scarcity perpetuates planning. Her currency reform was carried through by the Occupation Authorities, advised by disinterested economists, not by a democratic parliament, where it would have been obstructed by the beneficiaries of inflation. This ruthless sweeping away of the entire inflation structure gave Dr. Erhard the opportunity which he courageously exploited. He could ignore entrepreneurs, who wanted to borrow cheap money and pay back their debts in even cheaper money, and trade unions, who wanted to maintain standardised wages and prevent unemployment. Famine in Germany was a better teacher of sound economics than mere austerity in Britain. No doubt Germany could not have succeeded without United States' help, but this help was not more ample than that given to other countries. The editor and his collaborators can justly claim that the policies which they advocate have been successful under most adverse conditions. The argument, that other patients might be unwilling to undergo similar treatment before they are in extremis, does not destroy their value. The absence of an index in a symposium is particularly inconvenient.

M. J. BONN

London.

Science and Civilisation in China. Vol. I. Introductory Orientations. By J. NEEDHAM. (London: Cambridge University Press, 1954. Pp. 318. 52*s.* 6*d.*)

THE history of Chinese science and technology may seem an esoteric subject, even to the economic historian. But quite apart from its general interest it has at least two important and by no means peripheral points of contact for him. First, the Chinese contribution to technology and specifically to Western techniques was much greater than has been widely supposed. Second, the student of the genesis and development of modern Western economic institutions is confronted with the challenging question why it was that industrial capitalism did not first break through in a country which was apparently technically the most advanced in the world up to the end of the Middle Ages.

The first volume of Dr. Needham's monumental work is largely in the nature of an introduction providing the minimum indispensable historical and cultural background and an overall survey. Readers will find it most informative on the Chinese contribution, which was primarily in the field of technology as distinct from systematised science. It includes not only the basic inventions of paper and printing (the earliest surviving record, going as far back as A.D. 594, is a printed " Beware of the dog " notice!), the compass and gunpowder, but also raw materials, tools and processes in textiles, pottery and transportation, among others. Marco Polo noted the use of coal and *paper currency* in thirteenth-century China. In addition, there are a number of Chinese discoveries, such as in the manufacture of cast-iron and in the construction of bridges, which the West may have rediscovered for itself only many centuries later; a definite if curious instance of this genus is the employment of the rectangular grid for artillery and transpolar flying maps. Finally, there are some cases, such as that of porcelain (the story of d'Entrecolle's theft of china clay from the Imperial kilns has already been told in the *Economic History Review*), where Chinese craftsmanship has never been equalled. In contradistinction, the Jesuit missionaries of the seventeenth century could bring China only four fundamental inventions she did not already have: the Archimedean screw, the double force-pump, the crankshaft and clockwork. The common view expressed by Toynbee that the mechanical penchant is—or was—a Western monopoly is thus revealed as another outmoded generalisation.

The process of transmission was extraordinarily variegated, involving as it did Roman legionaries and Chinese soldiers, jugglers and acrobats, alchemists and engineers, missionaries—Zoroastrian, Manichaean and Buddhist as well as Christian and, among the latter, Arian and monophysite as well as Athanasian—and, of course, artisans, merchants and travellers of diverse ethnic origin and creed. In many cases the actual mechanics and details of transmission are not fully known, but there is sufficient evidence to establish a strong presumption of indebtedness to China. In this connection, the author has an illuminating discussion of the diffusion controversy in which

he takes a balanced position as between the more extreme pro- and anti-diffusionists.

As for our second point of contact, as is well known, Max Weber's interest in Chinese history arose from his appreciation of precisely this problem. If his work must be deemed a failure, whether as an interpretation of the place of Confucianism and Taoism in Chinese social and economic history or as an explanation of why capitalism did not emerge in China, it was at least a failure on a grand scale, which despite its many errors of detail and interpretation remains an invaluable preliminary survey, still stimulating because it asked the right questions. Perhaps unfortunately, it will not be until his seventh and last volume that Dr. Needham will review the interconnections between science and technology and social milieu, as the intervening volumes are to deal with the history of Chinese scientific thought and with specific branches of Chinese science, both " pure " and applied. Those concerning engineering, agricultural, industrial and military techniques should naturally arouse our curiosity, but it is the finale which we shall most eagerly await.

The author possesses the inestimable advantages both of encyclopædic equipment as a scientist, historian of science and Sinologist and of first-hand knowledge and perceptive grasp of Chinese society and, to use Lattimore's felicitous phrase, of " the Chinese style of life." This union must surely be unique. Others have enriched Far Eastern studies by the accumulation of monographs on circumscribed subjects or, as in the case of Weber and Veblen in his all too brief and little known essay on Japan, by the brilliance of their individual and perhaps unco-ordinated *aperçus* into social structure. Dr. Needham, ably assisted by Wang Ling, combines in this work not only the laborious fact-finding of the monograph and the grand sweep of the broad canvas but also the vision of an alien culture and civilisation from within, without which the latter remains incomprehensibly remote.

S. ADLER

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The Economic Development of Van Diemen's Land 1820–1850. By R. M. HARTWELL. (Melbourne: Melbourne University Press, (London: Cambridge University Press), 1954. Pp. xi + 273. 35*s.*)

THE serious study of Australia's economic history is still only in its infancy, but recent work in this field has been of high quality, and Professor Hartwell's story of the early history of Tasmania is no exception.

Professor Hartwell tackles his subject systematically. After an introductory Part One, he proceeds in Part Two to a history of the supply of resources, grouped under the headings of land, labour and (external) capital. In Part Three he surveys the development of the various extractive and manufacturing industries, and of trade and finance. Finally, in Part Four, he gives a narrative of the course of Tasmanian trade fluctuations,

well supported by statistical evidence, and set against the background of a simple but effective theoretical model of the trade cycle in a dependent economy.

Though Professor Hartwell concentrates on the history of Tasmania *before* 1850, he has a most eventful story to tell. Much more of Tasmania's development occurred pre-1850 than in the case of any of the other Australian states. Even to-day, as Professor Hartwell observes, Hobart has the appearance of a Georgian town. Much of the best land in Tasmania is readily accessible, and was (due to circumstances explained by Professor Hartwell) rapidly transferred to private ownership. Labour, thanks mainly to transportation, was supplied about as rapidly as it could be absorbed. Little capital was needed to open up the country's natural resources, apart from mercantile capital, which (thanks to the rapid growth of wool exports) could be drawn from London. Of the portion of the island suitable for white occupation, " by 1850 the only important areas not developed at all were the northern coastal plain and the west coast mining district."

Professor Hartwell is to be congratulated on this most stimulating and readable book.

BRIAN TEW

University of Nottingham.

The Shrewsbury Drapers and the Welsh Wool Trade in the XVI and XVII Centuries. By T. C. MENDENHALL. (London: Oxford University Press, 1953. Pp. 248. 21*s.*)

THIS study of the Welsh cloth trade makes a welcome contribution to our knowledge: it is valuable not only as a regional study but also as an important new piece to fit into the pattern of the English cloth industry as a whole. England probably from an early period, and certainly by the sixteenth century, produced a great many different kinds of cloth; cloths differing in weight, texture, colour, and of course in quality and price. In the sixteenth and seventeenth centuries there were three major groups: first, the fine-quality broadcloths, made in the West of England and exported usually in the white to be finished abroad, took their place in the most sophisticated markets of Europe; secondly, the " new draperies," the bays and says and serges made either wholly or in part from yarn spun from combed not carded wool, largely replacing the medieval worsteds of Norfolk and the kersies of Suffolk and Devonshire, found an increasing market, especially in Southern Europe; and thirdly, the coarser and heavier woollens of Wales and the North satisfied yet other customers and supplied an expanding market alongside the new draperies. The first group has its illustrative study in G. D. Ramsey, *The Wiltshire Woollen Industry in the Sixteenth and Seventeenth Centuries*; the serge industry of Devonshire discussed by W. G. Hoskins, *Industry, Trade and People of Exeter, 1688–1800* illustrates the second group; and now this book joins H. Heaton, *Yorkshire. Woollen and Worsted Industries* to illustrate the third. Wales has most in common with Yorkshire; in both areas industry grew to

supplement incomes derived from a land where farming could not be intensive and was carried on in tiny farms scattered among many remote valleys; it lay far from sources of raw material other than wool and far from markets. But the cloth industry of Wales is sufficiently different from that of Yorkshire to make a study of it complementary and not merely supplementary.

Mr. Mendenhall examines the industry and trade of this remote borderland which continued to produce coarse and heavy cloths for the overseas market when other areas, even Yorkshire, turned to finer broadcloths and new draperies. He discusses all the stages: the production of the cloth, the disposal of the cloth in the local markets, the finishing industries of the border towns, the sale of the cloth at Blackwell Hall in London and finally its export abroad. He shows that the demands of the export market determined the prosperity of the manufacturers, even in this remote region, and afforded the middlemen the opportunity to dominate the trade.

Corn production on the valley farms, cattle farming on the hill farms early took first place in Welsh economy, but sheep were present too on both hill and valley farms, and the social and political changes of the fourteenth century served to increase their relative importance. Welsh cloth was already marketed abroad in the medieval period; items of Welsh cloth appear in fourteenth- and fifteenth-century customs accounts of Bristol, Lynn and London. There is evidence, however, that more cloth was then made in South Wales than in North Wales, but by the sixteenth century the industry had certainly declined in the southern and grown in the northern counties. The increasing interest in mining, especially in coal-mining, in South Wales is given as the cause of the change. This may have been an important factor in the change, but it is unlikely to have been the sole factor. Changes in location have as a rule very complex causes. By the time of the Civil Wars a petition addressed to the king on behalf of "Your Majesties' six northern Counties" spoke of "many thousands of families in the mountainous parts of this countrey who sowing little or noe corn at all, trust merely to the sale of their cattle, wooll and Welch cottons for provision of bread."

The manufacture of a great variety of fabrics (friezes, cottons, flannels, linings and rugs are frequently mentioned) carried on in small, widely scattered units, each with little capital, favoured, if the cloths were to reach a profitable market, the growth of middlemen. From the manufacturing districts stretching deep into the Welsh highland the cloth was brought to be finished and sold in the border towns. Oswestry was a first stage; it was already an entrepôt in the time of Edward I; Chester and Shrewsbury early competed for control over the next stage, Shrewsbury was made a staple town in 1326 at the same time as Carmarthen and Cardiff. Chester in 1582 made a bid for the staple in Welsh cottons, stressing the advantage to the realm of granting the staple as a step to restoring and maintaining the prosperity of the city. Shrewsbury in a cogent protest emphasised her own advantages, her more southerly situation giving a wider hinterland in Wales and a shorter journey to London, enabling the town to provide the manufacturers with the three necessities of "oft return, ready payment and easy

furniture of victuals and such things as they need." The Shrewsbury Drapers are shown to exploit most successfully this situation. They were sufficiently wealthy to split off from the Mercers Guild in 1464, and sufficiently powerful to limit thereafter the activities of the Mercers to retail trade; they supported and largely controlled the finishing trades within the city; and they extended their influence to London, maintaining members in the capital. The Welsh clothiers struggled against their monopoly, the Shrewsbury shearmen kicked against their pricks, the London merchants strove to establish themselves in Wales; all failed. Yet the Shrewsbury Drapers never possessed an official monopoly; even such regulation of trade as existed was withdrawn in 1621 and the cloth trade declared free. But the Welsh clothiers, who had struggled so long to " free " the trade, now found that the " free " trade flowed yet more directly and exclusively to Shrewsbury, and thereafter the London merchants, troubled by the general depression, came no more to Wales. When trade was declared free the Shrewsbury Drapers gained *de facto* a monopoly.

The final market for the Welsh cloth was on the Continent, contemporary documents stress the importance of Rouen: " the great vent of such cottons is at Roane in ffraunce, where they be bought by the merchants and spent by the poor." In the great depression which English cloth exports as a whole suffered in the 1620s, Welsh cottons almost alone seem to show no steady fall. As the French market became upset, the Spanish and Mediterranean market expanded. Once again this work demonstrates the complexity of local reactions, the dangers of generalisation and thus the value of these detailed studies.

Appendices contain a trade agreement between a Shrewsbury Draper and a London Merchant Taylor, some figures of the enrolment of apprentices and freemen, and the text of the Cloth Bill of 1621. There are no maps; a map of Wales and of the routes between Shrewsbury and London would have been an asset, and might have been expected in a book that states that " the manufacture of cloth in Wales takes its shape from the geography of the Principality."

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The Structure and Growth of the Italian Economy. Prepared by the Program Division of the Special Mission to Italy for Economic Co-operation of the UNITED STATES MUTUAL SECURITY AGENCY. (Rome: Mutual Security Agency, 1953. Pp. 165.)

THE title of this study gives an accurate but incomplete description of its subject-matter; a possible explanatory sub-title would have been " An application of input–output analysis to Italian economic problems." The two principal authors are Professors Hollis B. Chenery and Paul G. Clark, both of whom had previously been associated with Professor Leontief at the

Harvard Economic Research Project. The main interest and importance of the book derives from the fact that it makes use of the input–output approach in order to analyse some of the immediate issues of economic policy in Italy. As the authors remark in their Introduction:

> " Up to now, most attention has been given to the development of the theoretical scheme and the compilation of the basic tables. The application of input–output analysis to practical problems of economic policy is only just beginning. It is as an illustration of such practical applications that our work in Italy may be of some general significance."

The book contains five main chapters. The first of these consists of an introduction to input–output analysis by Professor Chenery, which is a remarkably good piece of exposition—clear, thorough and concise. It includes some interesting remarks on the subject of " methods of solution," together with a useful illustrative example. After this Professor Clark describes the construction and properties of the input–output table which was drawn up for Italy for the year 1950. (The full technical details of the methods and sources employed are given in an Appendix written by Dr. Vera Cao-Pinna.) An unusual feature of the table is that it is rectangular rather than square: it contains more rows than columns. In the main part of the table (which records transactions in " intermediate products ") there are fifty-six columns, of which fifty-three refer to the commodity-producing sectors of the economy and three to the service trades. The same fifty-six sectors are listed in the rows, but in most cases they are split up into subsectors, of which approximately 200 are distinguished. For most practical purposes, however, the authors have used consolidated forms of the main table, with a comparatively small number of sectors. Professor Clark makes use of the table to describe and illustrate some of the features of the Italian economy. He also describes an interesting experiment which was performed in order to test the reliability of the input coefficients yielded by the table. The results of this were encouraging.

The next chapter, by the same author, is perhaps the most interesting. It is entitled " The Structure of the Italian Economy in 1956," and assesses the implications of achieving the aim, which was agreed on by the O.E.E.C. countries, of a 25% increase in total output between 1951 and 1956. Specific assumptions are made about each of the main categories of final demand, and a solution is found, with the help of the input–output matrix, which gives the total requirements for the output of each individual industry. These estimated requirements are compared with estimates of productive capacity in 1953, in order to investigate the possibility that economic expansion on this scale might be threatened by shortages of capacity. The conclusion which emerges is that this is unlikely, and that only in the case of agriculture are capacity limitations a serious matter. The solution is also used to estimate the effects of expansion on import requirements, and therefore on the balance of payments; and a further calculation is made of the possible effect on industrial employment—with rather depressing results. In addition, a special study is made of possible substitution among fuels and its effects on

the rest of the economy. The method of procedure and the results obtained are set out very clearly. Two minor complaints may be made. First, the projections of final demand are made in a rather casual way, and a more detailed analysis would have been of interest. Second, no attempt is made, in the section which deals with productive capacity, to consider what rate of increase in capacity might be associated with a given rate of investment, and to relate this to the assumptions which were actually made about investment for the purpose of the inquiry. It is only fair to add, however, that there was little evidence which could have helped the authors to arrive at any conclusion about this.

The final two chapters are by Professor Chenery. In the first, he outlines a regional input–output model, in which the North and South of Italy are distinguished, and attempts to estimate the effect on each region of an investment programme carried out in the South. The second is concerned with the problem of structural unemployment, and the possibilities of economising in the use of capital in Italy. Estimates are made, for sixteen main industries, of average unit requirements of labour and capital; and the solution of the input–output matrix is used in order to include in these estimates each industry's indirect requirements, which arise from the purchases it makes or causes to be made from other industries. These chapters are interesting as exercises in method; but as the author points out, the available statistical evidence is too fragmentary for much confidence to be placed in the actual results.

Altogether, this is a most impressive piece of applied economic research, which deserves a wider circulation than it seems likely to get in its present form. It should be of interest to all economists who are concerned with the quantitative aspects of national economic problems.

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Realms of Value. A critique of human civilisation. By R. B. PERRY. (Cambridge, Mass.: Harvard University Press (London: Geoffrey Cumberlege), 1954. Pp. vii + 497. 60*s*.)

PROFESSOR BARTON PERRY's *General Theory of Value* appeared twenty-eight years ago, and his new work is a sequel to it, developing his theory of value in its application to all main sectors of human knowledge. It is that rarest of present-day philosophical enterprises, an attempt " to achieve systematic unity in a field which would otherwise be divided among experts unaware of one another," a persistent effort to find a common set of human values applicable equally to science and ethics, to politics and economics, to law and education. In general approach Professor Perry may be called utilitarian, in the sense that his philosophy is one of interests. He contends that any thing has value when it is " the object of an interest," and " a thing is an object of interest when its being expected induces actions looking to its

realization or non-realization." Morality is man's endeavour to harmonise conflicting interests, and an object is good when it is the object of a positive interest (that is, when its being expected induces actions looking to its realisation). It is morally good when " the interest which makes it good satisfies the requirement of harmony." We seek freedom when we seek to harmonise interests for the sake of the interests harmonised: and the purpose of morality is " to provide room " for all interests which can be harmonised.

Psychologically, he sees the individual as having a certain fund of available energy for which his different interests compete: as one interest grows stronger, it tends to weaken others. The strength of an interest is its precedence in this rivalry, and the development and play of interests is governed by a principle loosely like the conservation of energy. Democracy is defined as " a harmony of wills by which to achieve the maximum fulfilment of the interests of all concerned." The economy most consistent with democracy is defined as a " regulated capitalism." Regulation is necessary for the harmonisation of interests and the conscious promotion of moral ends and human values. As Professor Perry points out, the writings both of Lord Keynes and of Lord Beveridge are pervaded by an appeal to social and moral standards. Moral control of economic activity must be lodged either in the public authority or in the conscience and wills of those who participate in economic activity. An economy must either regulate itself, or submit to being regulated, and " the interference which it resents is the penalty of its moral irresponsibility." Although, being an American, he is somewhat reluctant to recognise or admit it, Professor Perry has produced a philosophy admirably suited to justify the growth of the welfare state.

Although few will agree with all the inferences he draws in applying this argument to æsthetics and culture, law and education, Professor Perry always writes with a refreshing common-sense and down-to-earth sense of reality. On the topical subject of the validity of seeking an historical pattern in the growth and decline of civilisations, he makes comments which strike devastatingly at the very base of the Spengler–Toynbee interpretations of history. There are no characteristics of a physical organism more obscure, as he points out, than those of growth and senescence. To transpose these ideas to the study of cultures and civilisations brings no clearer understanding of them, and gives merely a specious sense of scientific achievement. Indeed, it only obscures and confuses the study, because civilisations may be declining in some respects whilst they are advancing in others. In ancient Athens great philosophy flourished alongside small politics, and Southern California could combine medieval ideas with the latest technical gadgets. Despite its occasional crudities of ideas and style, here is a work of wide interest and stimulus, and a commendable, courageous attack on the fragmentation of modern thought.

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NOTES AND MEMORANDA

A NOTE ON PRODUCTIVITY AND THE LOCATION OF INDUSTRY

It has been argued in the Economic Journal that productivity would be increased by abandoning the diversification of industry programme and concentrating industrial development in the Great Industrial Belt.[1] It is the purpose of this note to defend the Government's Development Area policy, and to argue that the factor endowment advantages of the Great Industrial Belt can be duplicated in the Development Areas. If this claim could be substantiated, then there would be no need for economists to advocate, on grounds of efficiency, that people should emigrate from Cumberland, the North-east Coast, South Wales, etc., into the centre of Britain, where, already, over 55% of the population live on under 20% of the total land area.

Does the Great Industrial Belt offer lower-cost sites to industrialists than the Development Areas? Mr. Hobson's conclusion that "If our aim is for greater efficiency it would appear that there should be a gradual movement of population and industry away from the Development Areas"[2] was based on the relative costs of coal and iron and steel in different locations and on external economies generated by the concentration of medium-sized plants.[3] The evidence cited is not convincing. Not all industries are heavy users of coal, nor can generalisations be readily made from one sector of the metal industries. The economies of concentration found in the cotton industry, the engineering industry of the Midlands and some of the London industries[4] could lead to external diseconomies of congestion if pushed too far. Outside the Great Industrial Belt economies of concentration are to be found too. In Glasgow, Belfast and Newcastle upon Tyne an efficient complex of the metal trades and marine engineering has developed; the economies of concentration enjoyed by the linen industry of Northern Ireland is another example.

J. Sykes has pointed out the following advantages of location outside the Great Industrial Belt:[5]

> "New factories which need to be near native raw materials . . . (chiefly coal, other minerals and chemical materials) are prolific there . . . new factories in the many industries which find their cheapest location

[1] A. C. Hobson "The Great Industrial Belt," the Economic Journal, Vol. LXI, No. 243 (September 1951), pp. 562–76, and "The Great Industrial Belt: A Rejoinder," the Economic Journal, Vol. LXII, No. 246 (June 1952), pp. 436–40.

[2] Economic Journal, Vol. LXI, No. 243 (September 1951), p. 575.

[3] *Op. cit.*, pp. 572–4. [4] *Op. cit.*, pp. 569–70.

[5] Economic Journal, Vol. LXII No. 246 (June 1952), pp. 431–6.

> in and near ports often will have to go outside the belt . . . a number of new factories will make products which tie them to local areas outside, as well as inside the belt . . . the belt contains only a moderate number of industries employing more than its share of the national total of insured population. This suggests that over a fairly wide range of industries locations outside the belt have costs as favourable as locations inside it . . . there is a wide range of lighter industry which can, and does, take locations in different parts of the country because costs at these do not vary materially."

In addition, Professor Sykes points to the wastes of duplicating social capital and to possible increased costs through increased congestion, if Development Area policy were to be abandoned. J. H. Dunning has underlined the advantages that have been derived from the diversification of industry policy through tapping surplus female labour and the stabilising influence of diversification on the economic unit of the family.[1]

A reversal of diversification policy would create a serious situation for Britain's major ports. Unemployment tends to be concentrated at the ports [2] because of the highly specialised nature of their industrial structures, their heavy dependence on unskilled labour, their high susceptibility to seasonal movements in activity and their vulnerability when faced with adverse movements in the level of international trade. It is particularly important that ports be diversified through the introduction of industries not directly dependent upon the movement of goods through them.

What would be the effect of emigration on the population left in the Development Areas? The solution of mass emigration for Britain's present balance-of-payments problems has been rejected, because of the adverse effects it would have on the morale of the population left behind. The same effects would result from a policy which left only a skeleton labour force in the Development Areas. The basic industries and port services which could not be moved into the Great Industrial Belt could not be expected to produce efficiently when deprived of their neighbouring light industries and the social amenities which exist only when the local community is large and prosperous.

The economies to be derived from a large-scale concentration of industry can be overstressed; what is important is a scarcity of labour which provides an incentive to industrialists to increase efficiency through substituting capital for labour. It is the scarcity of labour in the Great Industrial Belt which explains the higher productivity which prevails there, not a concatenation of plants. In a large integrated region where full employment prevails, labour rendered redundant by productivity increases is absorbed quickly by neighbouring firms, frictional unemployment can be reduced to a minimum. Managements, in such an environment, can substitute machinery for labour without being hindered by soft-heartedness towards dis-

[1] *The Manchester School of Economic and Social Studies*, Vol. XXI, No. 3 (September 1953), pp. 271–7.

[2] If London is excluded, then 12% of Britain's total working population work in the major ports, but the ports also account for 29% of total unemployment in Great Britain.

placed labour. Where innovation necessitates the dismissal of labour, the transaction approximates closely to the inhumanity assumed by economic theory. Management can therefore go about the business of hiring and firing labour, safe in the knowledge that the consequence of its actions will not be prolonged unemployment.

In the Great Industrial Belt workmen displaced by technological developments can usually find opportunities for new employment within travelling distance of their homes; a sharp contrast exists in the Development Areas. In the latter, unless workers migrate to the Great Belt, increased unemployment is likely to be a consequence of labour-saving innovation. Barrow and Sheffield may be contrasted: the unemployed in Barrow are relatively immobile because of isolation, but Sheffield is within daily travelling distance of centres of employment such as Rotherham, Barnsley, Doncaster, Chesterfield, etc.

In Development Areas the management–labour relation is more intimate; both sides of industry form part of a relatively small community. When displaced labour cannot quickly be re-absorbed in a region, to render labour redundant requires a degree of ruthlessness on the part of management which leads to misunderstandings and bad labour relations. When under-employment prevails " there is frequently a reluctance on the part of management, except under pressure of intense competition affecting their own survival, to show any enthusiasm for technical improvements which might condemn some of their own subordinates to unemployment . . . and the feeling of being something less than a full citizen."[1]

In the Development Areas the productivity drive is hampered by the fear of redundancy which exists in the minds of workmen. In the Great Industrial Belt, where full employment and a rising trend in effective demand exist, this fear is without foundation. In the absence of a national shortage of industrial equipment, or finance, the only obstacles to the introduction of labour-saving devices is a possible reluctance of labour to accept changes of any sort, or possible restrictive practices on the part of certain skills to protect themselves against a fall in their differential rates of pay. It is vital that new industry continues to be introduced into the Development Areas; new industry can create the conditions of labour scarcity essential for the attainment of higher productivity.

Mr. Hobson would appear to be correct in his contention that industries located in the Great Industrial Belt enjoy higher productivity than those located elsewhere. But this may not be due to unique economies which can only exist there. It may be due to the lower rates of unemployment which prevail, a condition which could be reproduced in the Development Areas, through a successful diversification of industry policy. Although gains in productivity are to be expected from locating more industry in the Great Industrial Belt, they are also to be expected from the contrary policy of directing industry to sites outside the belt!

[1] C. T. Brunner " Transport and Productivity," *Journal of the Institute of Transport*, November 1952, p. 4.

Mr. Hobson has drawn attention in a dramatic manner to real dangers inherent in the location-of-industry policy of the Government: that healthy industrial development in the Great Industrial Belt can be discouraged. But the principle should also be established that the policy is not inimical to attaining higher productivity in other important sectors of British industry.

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PARETO AND THE COMPENSATING PRINCIPLE—A NOTE

MR. BAILEY'S article on the compensation principle [1] suggests a point concerning Pareto's part in the development of welfare theory which may be of some interest. As Mr. Bailey explains, " Pareto declined to discuss any movement by which one consumer was made better off at the expense of another," [2] because he regarded the problem of the optimal distribution of the social product among persons as being beyond the scope of scientific investigation. He rejected the utilitarian approach.

> " Ophelimity, or its index, for one individual, and ophelimity, or its index, for another individual, are heterogeneous quantities. They cannot be added together or compared: *No bridge*, as the English say. A sum of ophelimity enjoyed by different individuals does not exist: it is an expression which has no meaning." [3]

Within these strict methodological limits, Pareto's optimum position, where " no one could be made better off without making someone else worse off " [4] provides as unequivocal an object for economic policy as may be found, and serves as a starting point for a discussion of compensation movements, which require rather broader assumptions about the distribution of the social product.

However, in one instance Pareto implicitly mitigated his attitude towards changes in distribution in order to extend the application of his " optimum " concept. In doing so, he made use of the idea of compensation. The passage is as follows: [5]

> " From the economic point of view, every effective monopoly, every bad determination of the coefficients of production, every bad utilization of the economic goods at the disposal of society removes us from the position of maximum ophelimity. This fact may be expressed in various ways. For example, it may be said that the social organization might be changed in such a way that all members of society could enjoy greater welfare, or at least, that a section could enjoy greater welfare

[1] M. J. Bailey, " The Interpretation and Application of the Compensation Principle," ECONOMIC JOURNAL, Vol. LXIV (1954), pp. 39–52. [2] P. 40.
[3] V. Pareto, *Manuel d'Économie Politique* (Paris, Girard, 1909), p. 265.
[4] Bailey, *loc. cit.*, p. 40. [5] Pareto, *op. cit.*, pp. 502–3.

without harming the rest. Or it might be said that those who suffer from the removal of the social organization from the maximum of ophelimity could, if they were allowed to reach the maximum position, pay a sum such that everyone would be better off with the new organization. It was thus that, in the past, the redemption of certain seigneurial rights was to the advantage of both serfs and landlords."

The idea is introduced in a parenthetical, almost underhand way, with the result that it has escaped attention for many years. Pareto offers no solution to the problems of interpretation which immediately arise, nor did he incorporate the idea into his general formulation. Whatever the reasons for this, they can hardly have been that he was unaware of the interest and importance of this novel criterion of economic policy.

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PROFESSOR WRIGHT ON METHODOLOGY—A REJOINDER

IN the September issue of the ECONOMIC JOURNAL [1] Professor McCord Wright takes me to task " for not distinguishing sufficiently in his paper [2] between a *possible* and a *true* story. I submit, however, that one of the most fundamental principles of scientific business-cycle analysis is that it is never enough merely to show ways in which a cyclical movement *could* occur—granted certain assumptions. The problem is to find out *empirically* and historically which one of these possible stories has *empirically* occurred and is most likely to *re*cur " (pp. 622–33. Italics in the original, except the second " empirically "). If Professor Wright can " find out empirically " which of a series of alternative hypotheses " has empirically occurred " and thus select the " true story " and not merely a " possible story " he is a better man than the rest of us. No scientist (certainly not in the natural sciences) would claim to be able to *prove* the correctness of an hypothesis by empirical observation. The most that empirical observation can do is to disprove a theory, by showing that it fails to account for the observed phenomena, or else showing that it is based on demonstrably false assumptions. An hypothesis can be rejected also in favour of a simpler one, if the latter accounts for the observed phenomena equally well. But in neither case could it be claimed that the hypothesis finally chosen represents " *the* truth " or " reality."

The purpose of my cyclical model was to show that given elastic expectations—*i.e.*, a state of affairs where " the facts of the existing situation enter in a sense disproportionately into the formation of long term expectations " [3]—a cyclical movement is bound to follow, at any rate if there is net saving in the community when production is at its maximum level. I further intended to show that the same assumptions *may*, but not necessarily *will*, generate a trend. The model was also intended to throw light on the factors which

[1] Pp. 622–5. [2] ECONOMIC JOURNAL, March 1954, pp. 53–71.
[3] Keynes, *General Theory*, p. 148.

determine the length of the cycle and of its various phases. I hoped it was obvious that the examples chosen were of a purely expository character and that the necessary assumptions were stated in an extreme form in order to emphasise the essential features.

I can readily believe that it is always possible to introduce such additional assumptions into any particular "model" as would destroy the "*a priori* necessity" of its conclusions. But if these assumptions are merely chosen at random (without any regard to their relevance to actual situations) they do not prove anything for or against an hypothesis. Scientific hypotheses are invented in order to account for the phenomena actually observed, not in order to demonstrate that there "ain't no such animal." Of course I would agree with Professor Wright (if this is what he really intended to say) that such simple analytical models should merely be regarded as a starting point; and they should serve as a guide to, and not a substitute for, empirical research.[1]

When Professor Wright says that the model suffers from a "logical weakness" in that business men's expectations would not be elastic (in the above sense) in a purely static or stationary world, he shows a complete misunderstanding of the purpose of an analytical tool. A "static" model of the trade cycle is not intended to "explain" non-existing phenomena of a purely imaginary world: the purpose of the static abstraction, here and elsewhere, is to enable us to isolate the relevant factors from the irrelevant ones *in the world as it exists*. If it can be shown that it is the existence of elastic expectations, and not economic growth as such, or technical innovation, etc., which is responsible for the generation of cyclical movements, it is perfectly legitimate from a methodological point of view to do this by assuming a particular state of expectations in a static framework—without being called upon to say whether that assumption is "realistic" in that particular imaginary situation. (Realism is only a meaningful attribute when applied to reality, not unreality.)[2]

The same kind of misunderstanding underlies also his criticism of my numerical examples. I would agree, of course, that under the strict assumptions of the numerical example, it is only as a result of a chance constellation of the various parameters that the cyclical movement takes the form of a "short cycle" of a simple pattern (meaning by a "short cycle" one where only a fraction, and not the whole, of the capital stock is renewed in each boom). But since, as I show later, more realistic assumptions concerning service-life remove this particular problem, I cannot see the inconsistency in

[1] My remark that it would not be worth while to introduce certain additional assumptions into the model "at the present state of knowledge" (which seems to have been misunderstood by Wright) referred to our knowledge of the facts of the real world, not to our knowledge of alternative trade-cycle models. It merely intended to say that it is not worth while to introduce "complications" at random until we know which particular "complications" are relevant.

[2] That I am myself very much aware of the connection between the elasticity of expectations and "dynamic" change is shown by the more extended treatment of the problem of expectations in my "Speculation and Economic Stability," *Review of Economic Studies*, Vol. VII (October 1939), particularly pp. 9–12.

using—deliberately—the *right* figures to produce the required results in an expository example.[1]

Professor Wright's strictures thus fail to reveal (to me at any rate) the "internal inconsistency" or the "logical weakness" which he claims—which does not exclude, of course, the possibility that his own model of the trade cycle is far superior to mine, or anyone else's. I can assure him that it was not my intention "to omit all rival accounts" on purpose, or to claim "*exclusive* validity" [2] for my theory; and if I had not taken account of his own work on the subject this possibly may only have been because I was not familiar with his books—a defect which I can see I must speedily remedy.

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DEPRECIATION, REPLACEMENT AND REGULAR GROWTH

THE economic profession certainly will be grateful to Professor Domar for having drawn attention (in "Depreciation, Replacement and Growth," ECONOMIC JOURNAL, March 1953) to the consequences of the replacement lag, which were well known to practice but rather neglected in economic theory except in a famous passage in the *General Theory*. As Domar remarks himself, the subject need not be tied to models such as those presented in his paper. Indeed, in the revision of the Harrod–Domar model of a regularly progressive economy, in Sections III and IV of the paper, certain shortcomings of Domar's approach become apparent; I refer to the implicit assumption that, as in the older model, the regularly progressive economy, in which replacement lags behind depreciation, will necessarily follow an exponential time path. Formally, the problem is not attacked by Domar in its full generality; and from the economic angle a discussion of a most im-

[1] I thought I had met Professor Wright's strictures concerning the initial build-up of the capital stock in the footnote to p. 59 of my paper, where I pointed out that it is only when over-lapping between building and scrapping periods is completely avoided that there will be a "short cycle" which, in the example chosen, meant booms and slumps alternating at five-yearly intervals (though I failed to make explicit that over-lapping could *not* be avoided if the initial build-up of the stock was a continuous process). Otherwise the assumption of a rigidly fixed and uniform service-life will lead to "long cycles" which imply, in terms of the same example, alternating booms and slumps of fifteen years each, when the service-life is twenty-five years; fifteen years of boom followed by twenty years of slump, when the service-life is thirty years and so on. The reason for selecting "the short cycle" of the example was that the fluctuations in the actual world are undoubtedly short cycles (in this particular sense) since only a fraction of the outstanding stock of capital is renewed during each boom, whilst the inevitable over-lapping of scrapping and building periods (as a result of the "echo") which prevents cycles from being "short" is only an acute problem (as Wright agrees) under the artificial assumption of a fixed and uniform service-life. (I completely fail to follow Professor Wright's own arithmetic either in the case of my original example or in the case of his assumption of a thirty-year service-life—but since the correctness or otherwise of his arithmetic is without significance to the points at issue, I do not wish to pursue this further here.)

[2] Italics in the original.

portant determinant of the development is missing, viz., a discussion of the *composition* of the *initial stock of capital*, of what amounts to the same, of the behaviour of the variables during the *initial period*. The following supplementary remarks may be welcome.

We make the usual simplifying assumption, also made by Domar; constant average lifetime of the capital stock, constant average capital coefficient v, constant saving ratio s and automatic replacement of assets after m years. Then the time path of the system, which it must follow if full utilisation is to be maintained, can be determined from the following difference equation:

$$(1)\quad P_{t+1} = P_t + (G_t - R_t)/v = P_t + (G_t - G_{t-m})/v \quad (t \geqslant m)$$

where P denoted gross output, G gross investment and R replacement. The gross output $P = Y + D$ (where D denotes depreciation) has to be chosen as starting point rather than the net output or income, because the capital coefficient v now represents the ratio of gross output to operating or gross capital (K_t) and not that of net output to net capital. The presentation in the form of a difference equation has the disadvantage that one must imagine the completion of current investment and replacement as concentrated at one point of time (here at the end of the period t), but nothing essential is lost by this simplification, and the mixed difference–differential equation which would arise from treating investment and replacement as continuous, could not be analysed as easily.

For the reader's sake we give the basic equations which follow from definitions and assumptions ($t \geqslant 0$):

$2(a)\quad P_t = K_t/v = K_t/m + Y_t = Y_t m/(m - v)$
$2(b)\quad D_t = Y_t v/(m - v)$
$2(c)\quad I_t = Y_t s$, where $I_t = G_t - D_t$ denotes net investment.
$2(d)\quad G_t = Y_t(s + v/(m - v))$

Applying the equations (2) to (1):

$$(3)\quad Y_{t+1} = Y(1 + A) - AY_{t-m}, \text{ where } A = s/v + (1 - s)/m$$

Note the $v < m$ because of the productivity of round-about processes; hence $A > 1/m > 0$.

There is a trivial solution $Y_t =$ constant (which in the present case is zero), indicating a stationary economy. Dividing the characteristic equation of (3) by $(y - 1)$, we obtain:

$$(4)\quad y^m - A(y^{m-1} + y^{m-2} + \ldots y + 1) = 0$$

According to Descartes' rule of signs, this equation has only one positive real root (y_1) equal to Domar's $(1 + r)$, which, if put into (3), yields Domar's (9). Furthermore, it is clear that unity cannot be a root (since $y = 1$ would yield $1/m = A > 1/m$); and since there are combinations of the three coefficients which yield $y > 1$, it is impossible for reasons of continuity that there are combinations such as that $0 < y < 1$. But there are other roots

besides y_1 which Domar did not consider. We may disregard the negative real root, since it arises only from our discontinuity assumption concerning the completion of investment and replacement. But we cannot disregard the *complex* roots which indicate the possibility of a *cyclical* path, *e.g.*, for $m = 3$, $s = 0{\cdot}1$, $v = 2$ we have approximately $y_1 = 1{\cdot}025$, $y_2 = -0{\cdot}337 + i\sqrt{0{\cdot}227}$, $y_3 = -0{\cdot}337 - i\sqrt{0{\cdot}227}$. In the complete solution,

$$Y_t = z_1(y_1)^t + \ldots z_m(y_m)^t$$

(where the z's are constants depending on the initial conditions) $z_2 \ldots z_m$ will vanish only if

(5) $Y_j/Y_{j-1} = y (j = 1 \ldots m - 1)$ and correspondingly for P_j and G_j.

If one of the z_i $(i = 2 \ldots m)$ is different from zero, cyclical movements may be superimposed on the exponential path $(z_1(y_1)^t$—provided, of course, $z_1 = 0$.

This general case will be understood more easily if it is realised that, by fixing the initial conditions $Y_0 \ldots Y_{m-1}$, the quantities $K_0 \ldots K_{m-1}$ and $R_0 \ldots R_{m-1}$ are also fixed, and vice versa. For given $Y_t (t \geqslant 0)$ the equations (2) establish the corresponding quantities P_t, G_t, etc., hence also K_t; since $K_t - K_{t-1} = G_{t-1} - R_{t-1}$, the R's are also determined. On the other hand, the R's clearly depend, for $m > t \geqslant 0$, on the age composition of K_0. Hence this age composition determines the initial conditions $Y_0 \ldots Y_{m-1}$; and there will be one and only one appropriate age composition of K_0 that satisfies (5). But if (5) is not satisfied, the economy will not grow at the exponential rate Y_1 as apparently concluded by Domar. The reader may convince himself of this fact: by putting $m = 3$, $s = 0{\cdot}1$, $v = 2$, $R_0 = R_1 = 0$, $R_3 = K_0 = 600$, he will obtain $Y_4 < Y_3$, $Y_5 > Y_4$, $Y_6 > Y_5$, $Y_7 < Y_6$, etc.

In this particular case the cyclical component is dampened. I am unable to prove rigorously that this always will be the case. The Routh–Samuelson stability conditions (P. A. Samuelson, *Foundations of Economic Analysis*, pp. 435–9) refer to the whole movement—(4) above—which is known to be unstable, because $y_1 > 1$. For $m = 3$ the proof is easy and for $m = 4$ we could examine the appropriate quadratic factor in (4), but since in reality m will be larger than four, we have not taken the trouble. However, dampening is likely to materialise if we discard the assumption of a constant average lifetime m, followed automatically by replacement, and allow a utilisation of assets beyond the lifetime entered by the accountant.

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CURRENT TOPICS

In this issue the format of the Economic Journal has been changed for the first time since 1904. We hope that the new format will not only save space and paper (it carries about 20% more words on a page) but will also be easier to the eye than that which it supersedes. The somewhat wider setting will at the same time make it easier to print tabular matter, which is of constantly increasing importance in the Journal. In the interest of those who bind their Journals, the size of page has been left unchanged. Since the cost of paper forms a large part of the total cost of producing the Journal, the new format will effect substantial savings, and ultimately, we hope, enable the Economic Journal to enlarge somewhat the amount of current work in economics that it is able to publish. It may interest some of our readers to know that the new type is Small Pica Baskerville (169–11), set to a width of 29 ems and 1½ point leaded.

May we express our gratitude to Mr. Richard Clay and others on the staff of Messrs. Clays, our printers since 1891, and also to Messrs. Crutchley and Dreyfus of the Cambridge University Press, for their help and technical advice in finding what we hope will be regarded as a very satisfactory new format for the Journal.

We congratulate Mr. J. R. N. Stone on his election to the new Chair of Finance and Accounting in the University of Cambridge. This research professorship has been established under the terms of the will of the late Mr. P. D. Leake, who left money to provide a chair or chairs for the encouragement of the academic study of accounting and public finance. It will be known as the P. D. Leake Chair of Finance and Accounting.

We offer our best congratulations to Mr. Oscar Hobson on the conferment of the honour of Knight Bachelor in the New Year Honours List. Mr. Hobson's contributions to financial journalism have been for many years a joy to his readers. For some years past he has served as a member of the Council of the Royal Economic Society.

The recent death of Professor Charles Rist at the age of eighty has deprived French economics of one of its most distinguished exponents of the older generation. To the end of his life he had continued to exercise a great influence among his younger colleagues, and was serving at his death as the first President of the newly created *Association Française de Science Économique*. He was for very many years the French correspondent of the Royal Economic Society. In England he is best known as author with

Charles Gide of the invaluable *Histoire des Doctrines Économiques*, which for most of an older generation of economists formed a familiar text-book. In the 1920s and 1930s he was French delegate on a number of important economic and financial bodies, and he continued for many years to exercise great influence in the Banque de France and in other circles concerned with the shaping of French economic policy.

We report with regret the death of E. J. M. Buckatzsch, recently Senior Research Officer at the Oxford Institute of Statistics. He had suffered for many years from illness, which he had borne with quite remarkable courage and fortitude, and he managed, none the less, to make important contributions to economics which will be well known to our readers.

Dr. Bonn writes:

> " Professor Dr. Rudolf Kaulla, who died on September 22nd in Lausanne, was not very well known in this country. But his books, *Die Grundlagen des Geldwertz, Rechtsstaat und Währung, Staat, Stände und der gerechte Preis* were greatly appreciated in Germany and in Switzerland. The University of Lausanne, when conferring on him an honorary degree, phrased this admirably: ' en homage au vénérable savant dont la doctrine alliant l'histoire à la jurisprudence, a enrichi la science économique de vues originales sur la monnaie, les valeurs, et le juste prix.' "

The following have been admitted to life fellowship of the Society:

Brennan, G. A.	Metzler, L. A.	Smith, O. D.
Khan, Z. D.	Samuels, L. H.	Valero, S.
Meissner, F.	Shah, M. Y.	

The following have been admitted to fellowship of the Society:

Agrawal, K. J.	Brittan, S.	Gandur, R. J.
Akhtar, M.	Browne, B. A.	Geary, D.
Amerasinha, W. A.	Buckley, K. A.	Goldberg, R.
Amogu, O. O.	Chauhan, P. R. S.	Gomes, L. D.
Arrarte, J. P.	Chosa-Kakari, T. S.	Gray, J. H.
Balasubramanian, S.	Clift, I. L.	Green, V. M.
Banks, E.	Davies, D. G.	Griffiths, O. E.
Belge, M. W.	Davies, G.	Gupta, R. P.
Bell, J. W.	De Barros, P. C.	Hattori, M.
Beswick, L. S.	Deif, N. A.	Higgins, T.
Black, W.	Dobson, S. C.	Hirschman, A. O.
Borg, G. L.	Dutt, P. K.	Hong, C. S.
Bornemann, A.	Eronini, O. U.	Jones, N.

Joshi, V. J.
Kevehazi, E. M.
Leon, C. S.
Mangasha, Y. W.
Mark, Prof. S. M.
Marshall, A. S.
McCallum, H.
Myer, H. S.
Naber, A. A.
Newton, B. A.
Notel, R. P.
Ofori-Atta, E. E.
Oliver, J.
Olokundu, J. O.
Pang, T. P.
Polanyi, G. M.
Powell, V. G.
Rajathuri, T.
Rees, B. D.
Richter, Dr. R.
Rizvi, S. A.
Roper, N.
Rowen, H. S.
Salkar, K. R.
Santhouse, S.
Sathiaraj, G. I.
Sen-Gupta, G. C.
Shah, R. S.
Shrotri, S. C.
Siddiqi, M. R.
Sinha, B. K.
Sinha, J. C.
Spulber, N.
Tan, R. P. C.
Tat, L. C.
Taylor, W. L.
Tsuji, R.
Vedpathak, Miss S. K.
Vigart, G. P.
Wallis, K. H.
Wardle, P. J.
Wehrwein, Dr. C. F.
West, B. R.
Williams, R. J.
Winter, P.
Yah, L. C.

The following have been admitted to Library membership of the Society:

Banco Nacional de Comercio Exterior, Mexico.
Creighton University College of Commerce.
Dai- Ichi Bank, Tokyo.
Kangyo Bank Ltd., Tokyo.
N. Z. Meat and Wool Boards' Economic Service.
Peshawar University.
Tokyo Daigaku Toyo-Bunka Kenkyujo.
Tokyo Keizai Daigaku Library.
Waseda University.

RECENT PERIODICALS AND NEW BOOKS

Journal of the Royal Statistical Society

VOL. 117, PART 4, 1954. *Callbacks and Clustering in Sample Surveys: an Experimental Study:* J. DURBIN and A. STUART. *The Phenomenon of Labour Turnover:* H. SILCOCK. *The Relations between Chained Indexes of Input, Gross Output and Net Output:* P. H. KARMEL. *The Mode of a Grouped Distribution:* H. M. FINUCAN. *First International Conference of National Committees on Vital and Health Statistics.*

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Economica

VOL. XXI, NO. 84, NOVEMBER 1954. *Economics of Dependence (1952–82):* F. W. PAISH and A. T. PEACOCK. *Consistency and Consolidation in the Theory of Interest:* R. TURVEY. *Industrial Productivity Growth in Europe and in the U.S.:* A. MADDISON. *The Origin of Ricardo's Theory of Profits:* G. S. L. TUCKER. *Non-Traded Goods and International Factor Price Equalisation:* E. V. MORGAN and G. L. REES.

The Review of Economic Studies

VOL. XXII, NO. 57, 1954–55. *The Geometry of Point Rationing:* M. MCMANUS. *Expectations, Uncertainty and Inventory Fluctuations:* E. S. MILLS. *The Determinants of Aggregate Consumption:* W. HAMBURGER. *A Synthesis of Engel Curve Theory:* J. AITCHISON and J. A. C. BROWN. *A Note on the Terms of Trade of Nigeria:* E. K. HAWKINS. *Notes on the Adding-up Criterion:* G. D. N. WORSWICK and D. G. CHAMPERNOWNE. *A Note on the Accelerator and Constant Growth:* A. KERVYN. *A Note on Mr. Ichimura's Definition of Related Goods:* R. L. BASMANN. *A Property of Mr. Harrod's Dynamic Model:* P. NEWMAN. *Memorandum on the Sterling Assets of the British Colonies: A Comment:* A. HAZLEWOOD.

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VOL. 6, NO. 3, SEPTEMBER 1954. *Period Analysis and Inventory Cycles:* R. NURKSE. *The Price of Fuel:* D. L. MUNBY. *The Dollar Crisis Revisited:* T. BALOGH. *Investment Decisions, Trade Cycle, and Trend:* A. J. YOUNGSON. *Some Elementary Theory about Accumulation:* D. B. BUTT.

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VOL. 16, NOS. 9–10, SEPTEMBER–OCTOBER 1954. *The Structure of Engineering Earnings:* K. G. J. C. KNOWLES and T. P. HILL. *The Shipping Bill for British Imports:* A. ROMANIS.

The Journal of Industrial Economics

VOL. III, NO. 1, DECEMBER 1954. *An Appreciation of Sir Henry Clay. Resale Price Maintenance:* SIR HENRY CLAY. *Fuel and Power Policy in Great Britain:* A. L. PLEASE. *The Concept of Steel Capacity:* J. A. MORRIS. *Research and Control in a Modern Supermarket:* D. E. STOUT. *The Accuracy of Data Collected from Firms:* E. RUDD.

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1953–54. *The Redistribution of Manpower in Great Britain following the Second Great War:* SIR GODFREY INCE. *Air Transport: a Statistical and General Review of its Economic Problems:* P. G. MASEFIELD. *Some Consequences of the General Strike:* H. A. CLEGG. *Is Education Possible?:* N. G. FISHER. *Twentieth Century English Banking:* R. S. SAYERS.

Population Studies

VOL. VIII, NO. 2, NOVEMBER 1954. *Post-war Refugees in Great Britain:* M. BÜLBRING. *The Role of Density as a Factor in Metropolitan Growth in the United States of America:* E. GROSS. *The Development and Structure of Brazil's Population:* G. MORTARA. *Precision in Population Estimates:* H. SILCOCK. *Note on the Accuracy of Local Population Estimates:* J. R. L. SCHNEIDER. *Note on Mr. Schneider's Analysis:* H. SILCOCK. *A Survey of Recent Belgian Population Policy:* C. WATSON.

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VOL. V, NO. 4, DECEMBER 1954. *American Criminology: Impressions of an European Criminologist:* H. MANNHEIM. *Social Attitudes to the Problem of Illegitimacy:* I. PINCHBECK. *Approaches to Conflict in American Industrial Sociology:* H. L. SHEPPARD. *Some Recent Work on Race Relations: a Critique:* M. FREEDMAN. *The Social Background of a West African Student Population—I:* G. JAHODA. *The Criminal's Responsibility: a Study in Concepts:* D. H. STOTTZ; *a Comment:* A. FLEW. *Social Prestige and Social Class:* B. WOOTTON.

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VOL. XXXI, NO. 1, JANUARY 1955. *A Study of History: What I am Trying to Do:* A. TOYNBEE. *Dr. Toynbee's Study of History: a Review:* SIR E. BARKER. *The Defence of South East Asia:* LORD BIRDWOOD. *The Economic Problems of Jordan:* J. BASTER. *The Bases of Arab Unity:* C. ISSAWI. *The Frontier of Settlement in Syria, 1800–1950:* N. N. LEWIS. *Problems of International Law Concerning Irrigation of Arid Lands:* J. F. HOSTIE.

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VOL. CIII, NO. 346, NOVEMBER 1954. *Knife-Edge Equilibrium. Flexible Money and Full Employment. Britain and a Code for World Trade. How Sound is German Recovery?:* G. SOLOVEYTCHIK. *First Principles on Wages:* E. V. MORGAN. *Post-War Banking in the Netherlands—I:* J. S. G. WILSON. *Growth of the National Debt Office:* D. S. LEES.

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VOL. CLXXVIII, NO. 1329, DECEMBER 1954. *The Liberal Tradition in Economics:* G. L. S. SHACKLE. *The Danish Banking System:* S. HANSEN. *Marine Insurance of Goods:* C. B. DROVER. *Legal Decisions—a Retrospect:* C. B. DROVER.

VOL. CLXXIX, NO. 1330, JANUARY 1955. *The Banking Year. Industry and Finance in Present-Day Japan:* G. C. ALLEN. *How and Why Exchange Rates Move:* H. E. EVITT. *The Taxation of the Earnings of Married Women:* D. WALKER. *Indorsement of Cheques:* C. B. DROVER.

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No. 112, DECEMBER 1954. *Trade Drives:* W. A. LEWIS. *American Business Prospects:* R. H. FRY. *Looking at Convertibility.*

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No. 28, NOVEMBER 1954. *Britain's Roads—Paralysis or Progress?:* C. T. BRUNNER. *Local Authorities' Dilemma:* T. L. POYNTON.

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No. 24, DECEMBER 1954. *The Finnish Economy Today:* R. ROSSI. *Science and the Small Firm:* H. TOWNSEND. *The Trials of Job.*

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VOL. XX, NO. 373, NOVEMBER 1954. *Background of the University Student.*

VOL. XX, NO. 374, NOVEMBER 1954. *Students from the Colonies.*

VOL. XX, NO. 375, DECEMBER 1954. *Fixing Wages: Some British Methods.*

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VOL. XXIII, NO. 127, NOVEMBER 1954. *Civil Defence and Planning. Objections to National Parks:* G. HAYTHORNTHWAITE. *The Sizes of Towns:* G. R. ALLEN. *The Church in the New Areas. Defects in the Planning Machinery:* D. WATSON. *The Local Carrier in a New Town:* E. H. B. PALMER. *Car Parks for Shops:* W. BURNS. *Slowing up the Grass:* E. R. WEBBER. *Resistance to Planning:* W. ARTER. *Weathervanes:* P. H. LOVELL.

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No. 14, SEPTEMBER 1954. *The Marketing Boards and the Licensed Buying Agents. Transport Economics in West Africa—I.*

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VOL. 5, NO. 1, JANUARY 1955. *Consumer Protection and the Producer:* A. WILSON. *Cut Price Competition:* R. EVELY. *The Giant Shopkeepers:* W. TRESISE.

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No. 15, DECEMBER 1954. *Price Movements in 1954. World Situation. The Future of Hard Fibres. Competition from Synthetic Fibres.*

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VOL. 20, No. 4, NOVEMBER 1954. *The British Governing Class and Democracy:* A. BRADY. *The Australian Post-War Economy:* SIR D. COPLAND. *Post-War Economic Development and Policy in Canada:* J. D. GIBSON. *Some Problems in the Provision of Medical Services:* O. HALL. *Clio's New Overalls:* H. HEATON. *On Some Fashions in Economic Theory:* G. A. ELLIOTT. *The Development of Democracy in Western Germany since the Second World War:* C. R. HISCOCKS. *Conservation Policy and Capital Theory:* A. SCOTT. *The Party System in Nova Scotia:* J. M. BECK. *Sociological Research in a Military Organisation:* D. N. SOLOMON.

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VOL. 22, No. 3, SEPTEMBER 1954. *The Transition to Customs Union in Southern Africa:* T. H. KELLY. *On Raising the Price of Gold—an American Viewpoint:* F. W. MUELLER. *Velocity of Circulation, Money Stock and Money Possession:* H. W. J. WIJNHOLDS. *Sampling Technique in an Economic Survey of Sugar Cane Production:* H. I. BEHRMANN.

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VOL. II, No. 2, OCTOBER 1954. *The Historical Experience on the Basic Conditions of Economic Progress:* H. J. HABAKKUK. *Keynesian Economics and Under-developed Countries:* K. S. GILL. *Organisation of State Enterprises in India:* H. K. PARANJAPE. *Employment and Capital Intensity:* V. V. BHATT. *The Multiplier Process in Developing Economies:* D. R. KHATKHATE. *Possibilities of Economic Integration between India and South East Asia:* F. A. MEHTA.

Sankhya

VOL. 14, PARTS 1 AND 2, 1954. *The Technique of Social Accounting in a Pre-Industrial Economy:* M. MUKHERJEE. *Analytic Tests and Confidence Intervals for the Mean Value, Probabilities and Percentage Points of a Poisson Distribution:* J. E. WALSH. *On the Method of Inversion in the Construction of Partially Balanced Incomplete Block Designs from the Corresponding B.I.B. Designs:* P. M. ROY. *A Note on Minimum Variance in Unbiased Estimation:* S. K. MITRA. *On Some Problems in Canonical Correlations:* R. G. LAHA. *On the Problem of Screening Defective Articles during Production:* M. MASUYAMA. *The Most Powerful Unbiased Critical Regions and the Shortest Unbiased Confidence Intervals Associated with the Distribution of Classical D^2-Statistic:* S. B. CHOWDHURY. *A Short Note on Wagon Turn-Round:* J. SINGH. *National Sample Survey—the Third Round. Truncated Sampling from Distributions Admitting Sufficient Statistics:* D. RAJ. *Note on the Design of Experiments and Testing the Efficiency of Drugs having Local Healing Power:* K. K. MATHEN.

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VOL. 3, No. 1, SEPTEMBER 1954. *Minerals and the Economic Development of Ceylon:* K. KULARATNAM. *The Industrial Development of India, 1918–1944:* S. S. RAJARATNAM. *A Development Corporation for Ceylon:* J. B. KELEGAMA. *Hydro Electric Development in Ceylon:* E. B. TISSEVERASINGHE.

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VOL. LXX, No. 5, NOVEMBER 1954. *Freedom of Association and Industrial Relations in the Countries of the Near and Middle East—I:* J. A. HALLSWORTH. *Maintaining Employment in the Iron and Steel Industry:* J. A. MORRIS. *The Development of the Chemical Industries and the Qualifications of the Employees.*

VOL. LXX, No. 6, DECEMBER 1954. *Life and Work in a Coal Mine:* J. RENS. *The Composition of the Governing Body of the International Labour Office. Freedom of Association and Industrial Relations in the Countries of the Near and Middle East—II:* J. A. HALLSWORTH.

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VOL. VII, No. 11, NOVEMBER 1954. *Statistics for 57 Countries Covering Data Important to the Analysis of the International Payments Problem and the Problems of Inflation and Deflation.*
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British

BELLAMY (D.). The Development of the Domestic Load at Home and Overseas. Paper presented to the Sixth Annual Convention of the British Electrical Power Convention. London: British Electrical Power Convention, 1954. 8½″. Pp. 60.

[The author is Chairman of the Yorkshire Electricity Board. He puts the case for increasing the domestic electricity load in the interests both of the consumer and of the supplying authority. Figures are quoted from a case study of electricity use in an estate of 500 houses to suggest that the peak-load problem is less serious than is often supposed. Brief discussion is also included of the prospects for increasing the domestic use of electricity in various foreign countries.]

BIGG (W. W.) (Ed.). Spicer and Pegler's Practical Auditing. Eleventh Edition. London: H.F.L., 1954. 9″. Pp. 501. 27*s.* 6*d.*

[This standard text-book was first published in 1911, and has since been many times reprinted in its various editions. The present edition has been brought up to date and entirely reset in a more modern format.]

BLAGBURN (C. H.). A Simple System of Economic Analysis of a Farm Business. Reading: Department of Agricultural Economics, University of Reading, 1954. 9½″. Pp. 28. 5*s.*

[This describes the method that has been evolved by Mr. Blagburn and his colleagues at Reading for assessing the relative efficiency of a farm business and its different aspects. The analysis falls into two parts, relating respectively to output and costs, and the procedure is essentially to compare the performance of the farm studied with the average of farms operating under similar conditions.]

BROWN (A. J.). The Great Inflation 1939–1951. London: Oxford University Press for the Royal Institute of International Affairs, 1955. 9″. Pp. 321. 30*s.*

[To be reviewed.]

CARUS-WILSON (E. M.). Medieval Merchant Venturers. Collected studies. London: Methuen, 1954. 8½″. Pp. ix + 314. 30*s.*

[To be reviewed.]

CARUS-WILSON (E. M.) (Ed.). Essays in Economic History. Reprints edited for the Economic History Society. London: Edward Arnold, 1954. 10″. Pp. 438. 45*s.*

[To be reviewed.]

CASTBERG (F.). The Norwegian Way of Life. London: Heinemann, 1954. 9″. Pp. 110. 12*s.* 6*d.*

[The author of this latest addition to the Way of Life series sponsored by UNESCO is Professor of Constitutional and International Law in the University of Oslo. His book is chiefly concerned with social and political topics, and economic questions are discussed in the text only in relation to political controversies that they have aroused. There is, however, an appendix by Professor Wilhelm Keilhau on the country's economic structure.]

CLEGG (H. A.). General Union. A study of the National Union of General and Municipal Workers. Oxford: Blackwell, 1954. 9″. Pp. xiii + 358. 27*s.* 6*d.*

[To be reviewed.]

CLEMENS (J. H.). Balance Sheets and the Lending Banker. A new assessment of accounts and accounting ratios in relation to bank advances. Second Edition, revised and enlarged. London: Europa Publications, 1954. 9″. Pp. 271. 20*s*.

[The first edition of this work was noticed in the ECONOMIC JOURNAL of September 1951, p. 682. It is designed primarily as a practical guide to bankers in the task of assessing the financial position of potential borrowers from their balance sheets. The present edition incorporates a number of additions and alterations, including completely new chapters on consolidated accounts and the breaking-up of a balance sheet and a section on the effects of taxation on the sources of business finance.]

CYPRUS FEDERATION OF TRADE AND INDUSTRY. Income Tax in Cyprus. A memorandum presented to His Excellency the Governor. Prepared by C. W. Thacker. Nicosia: Cyprus Federation of Trade and Industry, 1954. 9½″. Pp. 95.

[This is a plea for a reduction in the rate of income tax in Cyprus and for amendments in the island's income tax laws which would remove certain anomalies that they at present contain. The author points out that the downward trend in tax rates that has taken place in the United Kingdom since the end of the war has had no counterpart in Cyprus, and that large budget surpluses have been accumulated in the last few years. He further suggests that the extreme brevity of the income-tax law in Cyprus results in injustices to individuals which are avoided in the more elaborately drafted British law.]

DALTON (H.). Principles of Public Finance. Fourth Edition, rewritten and reset. London: Routledge & Kegan Paul, 1954. 7½″. Pp. v + 255. 10*s*. 6*d*.

[To be reviewed.]

DICK (JOHN REID). The engineer's approach to the Economics of Production. London: Sir Isaac Pitman, 1952. 8½″. Pp. v + 248. 21*s*.

[Mr. Reid Dick was the managing director of an engineering works and foundry. In this book he attempts to convey to other engineers an understanding of the way in which economic principles might help them to achieve economic as well as technical efficiency. He concentrates therefore on what economists have had to say about the problems of production, and he concerns himself particularly with the application of what he calls the Principle of Efficiency (*i.e.*, the least-cost combination of factors) to production. The subject matter of the book falls into two main parts. In the first few chapters, the author examines the concept of engineering efficiency and shows that where alternative methods of production exist it is necessary to consider factor prices before the most economical method can be decided upon. In the second half of the book the author considers how each of the main factors of production can be most economically used, and in the course of so doing he expounds the theory of rent, the law of variable proportions and so on. The book is intended for an engineering audience, and the exposition of economic principles is frequently illustrated with examples drawn from engineering practice. The author shows a good grasp of economics, although his frequent mention of economic Laws is a little disconcerting. His book should prove valuable in inducing engineers to take a wider view of their functions, and particularly to make decisions with economic as well as technical considerations in mind. It is a drawback of the book that at times the author's way of expressing himself is not as clear as might be wished.]

DOWNING (R. J.). National Income and Social Accounts. An Australian study. Melbourne: Melbourne University Press (London: Cambridge University Press), 1954. 8½″. Pp. 58. 6*s*.

[This provides an introduction to the ideas of the circular flow of incomes and a discussion of the preparation and use of national-income statistics addressed to Australian readers.]

EDEY (H. C.) and PEACOCK (A. T.). National Income and Social Accounting. London: Hutchinson's University Library, 1954. 7½″. Pp. vii + 222. 8*s*. 6*d*.

[To be reviewed.]

HARVEY (J.). English Mediaeval Architects. A biographical dictionary down to 1550. London: Batsford, 1954. 10″. Pp. vii + 412. 75*s*.

[This lovely book will enable all those who are fascinated, as one must be, by the tremendous scale of medieval investment as well as by the processes and control of medieval building to learn at least the names of the chief masters. Those selected for inclusion are: craftsmen described as "master" and engaged in the supervision of building operations, who can be assumed to have acted as architects unless there is evidence to the contrary; masters who held certain offices (for example, as chief mason) under the Crown; craftsmen given the title of "warden"; contractors able to undertake substantial works. It will probably surprise many readers to discover how much is known of the names, lives, incomes and chief works of those responsible for some of the great medieval buildings. Many will have lived their lives in Cambridge, for instance, without mentally connecting King's Chapel with the names of Reginald Ely, Simon Clerk, Martin Prentice, William Vertue

or John Wastell. But for the great buildings of the seventeenth and eighteenth centuries the name of the architect is nearly always familiar and associated in our minds with the products of their genius. May one hope that Mr. Harvey's work and that of his collaborators will help to restore credit to these great men to whom we owe so much of the beauty of England.]

HENDERSON (H. D.). The Inter-war Years, and other papers. Edited by Henry Clay. London: Oxford University Press, 1955. 9″. Pp. xiii + 445. 42*s*.

[To be reviewed.]

Industrial Management. A course of lectures given at Cambridge University for the Faculty Board of Engineering, 1953. Sheffield: The United Steel Companies, 1954. 8½″. Pp. 122.

[This contains seven lectures delivered in 1953 to engineering students in Cambridge by members of the staff of the United Steel Companies.]

THE INSTITUTE OF ACTUARIES. Yearbook 1954–1955. London: Cambridge University Press for the Institute of Actuaries, 1954. 8½″. Pp. 351. 3*s*.

[This contains a general account of the activities of the Institute of Actuaries and detailed particulars about its examinations.]

INTERNATIONAL ASSOCIATION FOR RESEARCH IN INCOME AND WEALTH. Bibliography on Income and Wealth, Volume IV, 1951. Edited by Phyllis Deane. Cambridge: Bowes & Bowes, 1954. 10″. Pp. 82. 37*s*. 6*d*.

[This maintains the high standard of thoroughness and accuracy established by its predecessors. Fully annotated references are given to 588 items dealing with income and wealth which were published during 1951 or which were not included in previous issues, although published before 1951.]

INTERNATIONAL ECONOMIC ASSOCIATION. International Economic Papers, No. 4. Edited by A. T. Peacock, W. F. Stolper, R. Turvey and Elizabeth Henderson. London: Macmillan (New York: The Macmillan Co.), 1954. 10″. Pp. 229. 15*s*.

[To be reviewed.]

ISAAC (J.). British Post-War Migration. National Institute of Economic and Social Research, Occasional Paper No. XVII. London: Cambridge University Press, 1954. 9½″. Pp. xv + 310. 30*s*.

[To be reviewed.]

JEFFERYS (J. B.). Retail Trading in Britain 1850–1950. National Institute of Economic and Social Research, Economic and Social Studies, XIII. London: Cambridge University Press, 1954. 9½″. Pp. xv + 497. 50*s*.

[To be reviewed.]

KOCHAN (L.). Acton on History. London: André Deutsch, 1954. 8½″. Pp. 184. 12*s*. 6*d*.

[This interesting essay on Acton's philosophy of history is based on the author's researches among the Acton archives in the Cambridge University Library. The material in these archives is so extensive and so unsystematic that no one reconstruction of Acton's thinking is likely to command universal acceptance, especially since, as Mr. Kochan points out, the elements of inconsistency are unmistakable. The author traces the development of Acton's ideas from his early adherence to Burke to his later conception of the duty of the historian as an inescapably moral one. He suggests that the chief weakness in Acton's ultimate position was his failure to make due allowance for the blurring of the moral responsibility of the individual that is involved when a historical event is the result of the actions of a group or groups rather than of a single person.]

MARRIS (R. L.). The Machinery of Economic Policy. Fabian Research Series, No. 168. London: Fabian Publications, 1954. 8½″. Pp. 49. 2*s*. 6*d*.

[This is a stimulating, provocative and to many readers probably an irritating political pamphlet; the Fabian tortoise on the cover seems peculiarly inappropriate to the many hares which Mr. Marris manages to start. But he asks a series of questions about the machinery appropriate to the formulation and carrying out of a socialist economic policy which certainly require answering. Is the machinery really suitable to a situation in which a quarter of all incomes are generated in the public sector and more than half the investment is in that sector? Does the present system ensure that the public sector acts in the public interest? Is the central direction itself both rightly and effectively directed? In general, Mr. Marris would like to see the central organisation greatly strengthened and its responsibility for general economic direction formally recognised; the ministers

of individual economic departments would remain answerable to Parliament for the technical shortcomings of their departments, but the Chancellor of the Exchequer, reincarnated as Minister of Economic Policy, would be answerable for the general scale of permitted investment or activity. If one is primarily concerned to create a well-informed central organisation as the instrument of a very powerful single Minister, Mr. Marris' suggestions must be taken seriously. But if the objective is to see how a group of individual and more or less equal ministers can share a common responsibility for a central economic policy and for the administration of its various parts, it is less clear that Mr. Marris has found a really workable answer. In the end it is the age-old problem of how far a democracy can and should be at the same time the hegemony of a great leader.]

Moose Fort Journals, 1783–85. Edited by E. E. Rich, assisted by A. M. Johnson. London: Hudson's Bay Record Society, 1954. 9½″. Pp. ix + 392.

[The documents here reproduced consist of the journal of John Thomas, the chief in charge at Moose Fort, a post at the Bottom of Hudson's Bay, and the correspondence between Moose Fort and smaller satellite posts. An introduction by Mr. G. P. de T. Glazebrook discusses the history of the post and the general background of the events described in the text.]

Morris (S. T.) and Luxton (H. W. B.). An Economic and Financial Survey of Farming in the South West of England. Bristol: Department of Economics, University of Bristol, 1954. 8½″. Pp. 96. 5*s*.

[This is the fifth of a series of reports based on the Farm Management Survey for Cornwall, Devon and Dorset. It contains a detailed account of financial results on a sample of farms in 1951 and 1952, and a more summary statement of financial results on a slightly smaller sample of farms in each year since 1947. Over the period 1947–52 the value of production in the farms in the sample increased by 90%, costs increased by 80% and net farm income increased by 125%.]

Musson (A. E.). The Typographical Association. Origins and history up to 1949. London: Oxford University Press, 1954. 10″. Pp. v + 550. 30*s*.

[The history of the Typographical Association was commissioned on the occasion of its centenary in 1949. The author has been able to draw on the records of the Association, and he has placed its growth against the technical and economic changes in the printing industry during the past century. The result is a scholarly and interesting account of this corner of social history. Trade unionism was already well established in the printing industry when a number of provincial trade societies, following the failure of previous attempts to amalgamate on a national basis the many town and district associations, established the Association without the London societies. At the end of its first year of existence the Association had 19 branches and 481 members, by 1914, 157 branches and 23,000 members, and in 1949 it had over 200 branches and almost 50,000 members. However, the Association still remains a provincial organisation, with the London letterpress men still preferring to stick to their own unions rather than amalgamate to form a nation-wide body. Mention must be made of the superb quality of the paper, printing and binding of this volume. It must have given all concerned great satisfaction to produce such an excellent example of the printer's craft.]

National Institute of Economic and Social Research. Register of Research in the Social Sciences in progress and in plan and Directory of Research Institutions. No. 11, 1953–4. London: Cambridge University Press, 1954. 10″. Pp. 168. 25*s*.

[The present issue of this register differs from its predecessors in not seeking to repeat in full information about continuing research projects that were described in previous editions. The reference back is now given instead, for reasons of economy. A substantial proportion of the unusually large number of new research projects reported this year are associated with the Conditional Aid Research Programme.]

Nevin (E. T.). The Problem of the National Debt. Cardiff: The University of Wales Press, 1954. 7½″. Pp. 115. 6*s*.

[To be reviewed.]

The Nuffield Foundation. Report for the Year Ended 31 March 1954. London: The Nuffield Foundation, 1954. 8½″. Pp. 141.

The Nuffield Foundation. Report on grants made during the ten years April 1943 to March 1953. London: The Nuffield Foundation, 1954. 9″. Pp. 319.

[These two reports between them provide a comprehensive picture of the work that has been done by this great foundation in its first ten years and of the work which it is doing now and plans to do in the future. The total amount of grants made since 1943 has been £4,208,586. Of this, £925,000 has been devoted to the problems of the elderly; £831,000 to Fellowships and Scholarships; £786,000 to medical research; £560,000 to research in physics; and £463,000 to projects in the social sciences.]

One Man's Vision. The story of the Joseph Rowntree Village Trust. London: Allen & Unwin, 1954. 9″. Pp. xi + 149. 10*s.* 6*d.*

[This is an account of the development of the village of New Earswick and the ideals of the founder and subsequent administrators of the Joseph Rowntree Village Trust. It also contains some interesting material on more general issues concerning the design of houses and the lay-out of housing estates.]

Pearce (F. T.). Financial Effects of Labour Turnover. University of Birmingham Studies in Economics and Society, Monograph A4. Birmingham: Faculty of Commerce & Social Science, 1954. 10″. Pp. 228. 15*s.*

[The author proposes certain new methods of measuring the cost of labour turnover and describes with much interesting detail how these methods were applied in four case studies. The losses caused by labour turnover take two forms: increased cost and reduced output. Dr. Pearce argues that to treat the loss from diminution of output solely in terms of increased unit overhead costs, as is sometimes done, leads to an understatement of the real loss, since account must also be taken of the profit foregone. He then draws a further distinction between what he calls special losses and general losses. The former are more obvious: enforced sudden reductions of output when replacements cannot immediately be found for leavers, damage to machinery resulting from the inexperience of a new worker, etc.; but the latter are probably at least as important. They include not only the reduction in output that results from the relatively low efficiency of new workers, but also the cost of keeping the reserve of labour necessary to ensure a steady flow of production in the event of a number of workers leaving at the same time.]

Reserve Fund and Maintenance Funds. Cambridge: University of Cambridge Department of Estate Management, 1954. 8½″. Pp. 16.

[This contains figures derived from sample surveys into the size of reserve funds and maintenance funds held in conjunction with agricultural estates. The author argues that since such funds are essential for the efficient administration of property, it is anomalous that the abatement of estate duty allowed for agricultural estates is not extended to them.]

Robinson (Joan). Letters from a Visitor to China. Cambridge: Students' Bookshops, 1954. 9″. Pp. 35. 2*s.* 6*d.*

[Mrs. Robinson's impressions of life in China to-day are here conveyed with much interesting information, as well as many characteristic asides. Her enthusiasm for the new regime and the spirit that animates it gets across to the reader all the more convincingly for being qualified in a few respects, notably with regard to population policy.]

Somervell (D. C.). A History of the United States, to 1941. Second edition. London: Heinemann, 1954. 9″. Pp. vii + 320. 15*s.*

[This is a re-issue of a book which first appeared in a small edition in 1942, and of which the plates were subsequently destroyed. It is primarily a political history, but the social and economic background is ably sketched in. The book is one that may be recommended to economic students who feel the need for some grounding in American political history as a scholarly and extremely interestingly written introduction to the subject.]

The State and Location of Industry. The Administrative Staff College, Course of Studies Papers. Henley-on-Thames: The Administrative Staff College, 1954. 9″. Pp. 24. 2*s.* 6*d.*

[This is the seventh Course of Studies Paper to be prepared by the Administrative Staff College primarily for the use of its students. It summarises very concisely the basic information on location of industry policy, and should prove very useful to those coming to the subject for the first time.]

Thomas (E.). Management in Farming. Newton Abbot: Seale-Hayne Agricultural College, 1954. 8½″. Pp. 52. 4*s.*

[These lectures will be of value not only to practical farmers but also to economists who are interested in obtaining an up-to-date picture of the problems of farm management. The subjects of the four lectures are the means of increasing output per acre; the supply of capital; labour; and the use of standards of cost and output in assessing the efficiency of a farm. Each of these subjects is treated with lucidity and a wealth of illustrative detail drawn from Professor Thomas' great knowledge and experience of the industry. A chief theme to which the author reverts in several of the lectures is the desirability, both in the national interest and in the interests of farmers themselves, of increasing the yield per acre, experience showing that on account of the fixed character of many of the costs of running a farm an increase in yield is not normally accompanied by a proportional rise in costs.]

TINTNER (G.). Mathematics and Statistics for Economists. London: Constable, 1954. 9½". Pp. vii + 363. 30*s*.

[To be reviewed.]

URWICK (L.). Is Management a Profession? London: Urwick, Orr & Partners, 1954. 8½". Pp. 27.

[In this paper one of the leading writers on management topics in the United Kingdom argues that management should now be regarded as a profession. In particular, he is concerned with gaining recognition for formal professional qualifications in management subjects.]

WOODS (C. A.). The Indian Community of Natal. Their economic position. Natal Regional Survey, Volume 9. London: Oxford University Press, for the University of Natal, 1954. 9". Pp. iii + 102. 25*s*.

[In Natal, as in East Africa, the economic problems are closely intertwined with the social problems of competition and complementarity between three human groups with very different backgrounds of education and of normal standards of life. In Natal the Indian population is, and has been for forty years, of very much the same size as the European, but is now likely to leave it considerably behind. This study covers not only the trends of total and working population, but also the general economic position of Indians, their incomes, expenditure, housing and social standards, and the health and welfare services available to them. It is clear that poverty is very widespread; "even in the higher groups poverty seems to harass at least 70% of them, and . . . only a sprinkling have reached the level where income can be spent on anything other than the necessities of life."]

Indian

BHOURASKAR (K. M.). Municipal Finance in Certain Leading Indian States. Bombay: Local Self-Government Institute (11 Elphinstone Circle, Fort, Bombay), 1954. 10". Pp. 262.

[This Ph.D. Thesis of the University of Bombay deals with municipal finance in certain Indian States, in the older sense of that word implying the India of the Princes in distinction from the Indian Provinces. The five States covered are Hyderabad, Mysore, Baroda, Indore and Kolhapur. These municipalities were generally, though not always rightly, regarded as economically and socially backward. Dr. Bhouraskar has been primarily concerned to measure the benefits received and the quality of the services rendered against the taxation levied. The general impression that emerges from his study is that in the past the municipalities in the States have performed fewer functions, have had greater freedom as to how they should perform them, and that even in the better States satisfactory standards were rarely achieved.]

CHAKRABARTY (S.) (Ed.). Essays on Banking and Finance. In Honour of H. C. MacColl. Issued as a Supplement to *The Economic Weekly*. Bombay: The Economic Weekly, 1954. 11". Pp. 79.

[Mr. H. C. MacColl held for twelve years the office of Chairman of the Bombay Exchange Banks' Association, and for nearly forty years was engaged in banking in India. These essays cover a wide range of subjects; they are mostly concerned with India, but some deal with subjects as different as the banking trends of the Netherlands, of Italy and of Australia, or the capital market of Western Germany. Indian topics include deficit financing, liquidity problems, the Hundi, the development of exchange banks and the discriminatory restrictions arising from the dollar gap.]

Financial Trends in the Cement Industry. Bombay: Association of Indian Trade and Industry, 1954. 9½". Pp. 57.

[This is an intensive, but very naturally an *ex-parte*, study of the effects of taxation on one growing industry in a period of rapidly rising prices. The analysis of company accounts suggests the conclusion that the book value of the gross capital of the industry increased by Rs. 50 crores during 1937–51, and the net worth by Rs. 21 crores; in terms of 1951 prices, however, the shareholders invested Rs. 27.5 crores (net), but the increase of real assets was only Rs. 17 crores; the residue of about Rs. 11 crores was the "capital erosion" due to the calculation of depreciation for taxation and price-fixing on the basis of historical cost. The authors are naturally led to discuss taxation policy and pricing policy.]

HAZARI (R. K.). The Economics of Estate Farming. Bombay: Indian Society of Agricultural Economics, 1954. 8½". Pp. vii + 73. Rs. 3/-.

[A sub-title describes this as "a plea for agro-industry." The author, who teaches at St. Xavier's College, Bombay, is convinced "firstly, that the ideal system of peasant proprietorship which is usually identified with family farming does not exist in India, and secondly, that the

system, or the lack of it, which we have, is not conducive to happiness and social stability." He advocates estate farming on a co-operative basis. By way of illustration he describes an estate farm at Wachandnagar, near Poona, which covers 17,000 acres, and has apparently made a great financial as well as technical success of large-scale sugar growing and processing.]

Income Tax for the Layman. Second edition. New Delhi: Central Board of Revenue, Government of India, 1954. 9½". Pp. 133.

[A booklet designed to explain in simple language the basic features of the Indian income tax. It deals with the basis of change, the definitions of income and residence, heads of income, rates and reliefs, assessment and appeals, payment and refunds and various minor aspects of the system. A chapter compares the burdens on incomes of various sizes in India with those in other countries.]

INDIAN NATIONAL CONGRESS. The Seventh Year of Freedom, August 1953–August 1954. New Delhi: All India Congress Committee, 1954. 9½". Pp. 371.

[This annual review issued by the All-India Congress Committee gives a convenient and useful account of Indian economic and political progress, and includes surveys of the financial position, the progress of the Five-Year Plan, of community projects, of food and agriculture, and of welfare generally.]

PETHE (V. and B.). Elements of Economics. Sholapur: Suras Granthamala, 1954. 8½". Pp. 335. Rs. 5/-.

[An elementary text-book designed to cover the syllabus of the intermediate examinations in arts and commerce in various Indian universities. It covers in competent fashion the traditional outlines of the subject.]

PETHE (V.) and GANDHI (V.). Population Crisis in India. Sholapur: Suras Granthamala, 1954. 8½". Pp. 46. 4*s*.

[A popular statement of the grave dangers of over-population in India, which loses from exaggeration more than it gains from vigour. The authors demand an active and dramatic population policy, to include heavy taxation of persons who marry too early or have excessive families, as well as the legalisation and encouragement of abortion and sterilisation.]

RESERVE BANK OF INDIA. Banking and Monetary Statistics of India. Bombay: Reserve Bank of India, 1954. 11½". Pp. v + 1005.

[This useful new work of reference includes a vast amount of detailed statistical material, covering a long range of years. A series of the numbers of banks of different classes and their deposits gives annual figures since 1870; the liabilities and assets of the Imperial Bank are given for every week since 1921; cheque clearings are given annually from 1900 and weekly from 1935. The detailed tables cover commercial banks, small savings, co-operative societies, cheque clearings, the operations of the Reserves Bank of India, currency and coinage, money rates and security markets, remittances, public finance, insurance companies, gold and silver production and movements. This is an invaluable research tool for any detailed work on India.]

RESERVE BANK OF INDIA. Trend and Progress of Banking in India. Annual Report for 1953 under Section 36(2) of the Banking Companies Act, 1949. Bombay: Reserve Bank of India, 1954. 9½". Pp. 114. 6*s*.

[This report covers the year 1953. While it is described as a quiet year for Indian banking, it marked the re-activation of monetary policy and the adjustment of the banking system to the disinflationary policy which was started in November 1951.]

WADIA (P. A.) and MERCHANT (K. T.). Our Economic Problem. Fourth Edition. Bombay: New Book Company, 1954. 9". Pp. v + 757. Rs. 8/-.

[This is the fourth, revised, edition of a book first noted in the ECONOMIC JOURNAL of April 1944. It remains, as it was then, an invaluable first introduction to the applied economics of India, much strengthened by discussions of the Indian Five-Year Plan, and by being brought up-to-date throughout.]

American

BAKER (H.) and FRANCE (R. R.). Centralization and Decentralization in Industrial Relations. Princeton, N.J.: Industrial Relations Section, Princeton University, 1954. 9½". Pp. 218. $4.00.

[To be reviewed.]

BERSH (M.). Steward Training in C.I.O. Unions. Student League for Industrial Democracy, Research Tract No. 2. New York: Student League for Industrial Democracy, 1954. 8″. Pp. 39.

[This is one of a new series of tracts on current topics written by university students. It contains a clear and well-documented account of the content and organisation of the training given to shop stewards in CIO Unions.]

BOERICKE (W. F.). Price Fixing, Controls, and Allocation of Non-Ferrous Metals. National Economic Problems, No. 453. New York: American Enterprise Association, 1954. 8½″. Pp. 36. $1.00.

[An indictment of the ill-effects of the American Government's attempts in recent years to control the prices and distribution of non-ferrous metals. These attempts, Mr. Boericke maintains, not merely discouraged the expansion of supply from American sources and involved the authorities in increasingly close control of use but also created an artificial shortage in the United States by setting American prices out of line with world prices.]

BORENSTEIN (I.). Capital and Output Trends in Mining Industries, 1870–1948. Studies in Capital Formation and Financing. National Bureau of Economic Research Occasional Paper 45. New York: National Bureau of Economic Research, 1954. 9″. Pp. 81. $1.00.

[To be reviewed.]

BRANDT (K.). Farm Price Supports—Rigid or Flexible? National Economic Problems, No. 452. New York: American Enterprise Association, 1954. 8½″. Pp. 20. 50 c.

[The author pleads for a reduction in the unrealistically high level at which farm prices are supported. He argues that although acreage restrictions and similar expedients may be sufficient in some cases to avoid further stock accumulation even at present prices, this is achieved only at the cost of misallocation of resources and government interference with the production decisions of farmers.]

DALE (E.). Planning and Developing the Company Organization Structure. Research Report No. 20. New York: American Management Association, 1952. 9″. Pp. 232. $4.50.

[This report is the result of a two years' research study into company organisation undertaken by the American Management Association. Some forty companies believed to have efficient organisation structures were visited and information obtained from many more. Numerous experts on organisational problems were also consulted. The resulting book is divided into two parts, *The Dynamics of Organisation* and the *Mechanics of Organisation*. In the first part, the organisational problems that arise at various stages of a company's growth are examined in turn, from the problem of the best division of work, which arises even in very small concerns, to problems such as the delegation of decision making, which arise only in comparatively large ones. In the second part of the book, the methods by which changes in organisation can best be brought about are discussed in some detail. In both parts, the points made are supported by numerous practical examples drawn from business experience. The book as a whole provides a very useful survey of the many problems associated with company organisation and draws attention to what is, as far as can be ascertained, the best practice in this field. Emphasis is placed throughout on the limitations that the personal factor imposes on the indiscriminate application of " ideal " organisation structures to different firms, and it is frankly acknowledged that this whole field is one in which a great deal has still to be learnt.]

DICKINSON (F. G.). Distribution of Physicians by Medical Service Areas. Chicago: American Medical Association, 1954. 11½″. Pp. 162.

[This is the result of a major research project that has been carried out over the past six years. Counties or other political boundaries being considered unsuitable for the study of the relation between the supply of medical attention and the demand for it, the country is divided instead into 757 medical service areas, these areas being those in which " the people and only those physicians who provide most of their medical care reside." A great amount of statistical and other material is then presented and analysed relating to the distribution of population and physicians between these areas. One interesting finding is that differences in purchasing power between areas have little or no effect on the ratio between physicians and population. Dr. Dickinson's general conclusions are reassuring, and he does not find evidence of any serious geographical maldistribution of physicians.]

GOULDNER (A. W.). Wildcat Strike. Yellow Springs, Ohio: The Antioch Press, 1954. 9½″. Pp. 179. $3.00.

[The first eight chapters of this book contain a detailed description and analysis of the antecedents and causes of a spontaneous strike that took place in a plant where a group of sociologists,

headed by Professor Gouldner, happened to be making a field-study. The two concluding chapters seek to use the material assembled in the case-study to formulate the "rudiments of a general theory of group tensions," followed by an analysis of the "defences" that may be present in any social system against actual or potential tensions. Professor Gouldner's polysyllabic jargon conceals much shrewd common sense, and his book is well worth reading on that account. But his ambitious theoretical chapters raise certain doubts—and not only about the scientific method implied by his procedure of trying to deduce a general theory from one single case-study amongst thousands that might be made. The central idea of his theory is that each of the two or more individuals or groups that form a social relationship have certain "expectations" about the rights and duties involved by the relationship; and if these expectations are violated, tensions result. A series of reasonable if not on the whole very startling propositions are then put forward to show the circumstances in which expectations are liable to be violated, with resultant tension: for example, where the expectations of two parties (say, management and labour) are mutually inconsistent or misunderstood; or where one party decides that it can afford to override the expectations of the other because of an advantage in power; or in a three-sided relationship where *A* is unable to reconcile what is expected of him by *B* with what is expected of him by *C*; and so on. Now it is fair enough to postulate that tensions will result from the violation of expectations; but surely the fundamental task for sociologists is to explain how particular expectations come to be formed and to develop. A dynamic study of the formation of expectations is lacking from Professor Gouldner's book. To provide a detailed analysis, as he does, of the ways in which *given* expectations may be violated is useful, but surely a less fundamental task. This limitation, which would appear to detract a good deal from the generality claimed by the author for his theory, is closely associated with the explicitly "clinical" approach which he adopts. He is concerned with the diagnosis, cure and prevention of departures from normal in social relationships, rather than with an analysis of the normal itself or with the question whether a normal exists.]

GREAVES (I.). The Colonial Sterling Balances. Essays in International Finance, No. 20. Princeton, New Jersey: International Financial Section, Princeton University, 1954. 9″. Pp. 21.

[The author considers the exact nature of the funds officially described as sterling liabilities of the United Kingdom to the colonies, in the light of the charge commonly heard that their increase in recent years represents economic exploitation of the colonies by the mother country. She points out that the holding of assets in London is a regular feature of the monetary arrangements of colonial territories, and that such balances were held before the war, though no figures were then published of their amount. Dr. Greaves acknowledges that certain of the monetary arrangements that have caused the balances to increase in recent years may have been unnecessarily conservative, as in the case of sterling held as counterpart against colonial currencies. But for the most part she views the accumulation of balances as the natural and not undesirable consequence of the impact of rising prices and prosperity on territories whose monetary system is centred on London. In addition to rejecting the charge that these balances are the result of exploitation, the author finds little substance in the suggestion that their existence represents a potential threat to the stability of sterling.]

HUTT (W. H.). The Theory of Collective Bargaining. New American Edition. Glencoe, Illinois: The Free Press, 1954. 7½″. Pp. 150. $3.00.

[This is an unaltered reprint of a tract first published in 1930 and reviewed by Mr. Dobb in the ECONOMIC JOURNAL of March 1931, p. 105. Professor von Mises expresses in a preface his support for the thesis put forward in the book that "not to interfere with the operation of the labor market is the only effective full-employment policy" and that "it is impossible for the unions to raise wage rates for all those eager to earn wages."]

JOHNSON (D. G.). Agricultural Price Policy and International Trade. Essays in International Finance, No. 19. Princeton, N.J.: International Finance Section, Princeton University, 1954. 9″. Pp. 24.

[The most interesting part of this survey of recent American farm price-support policy and its relation to international trade is the author's assessment of the net effects of the policy as it has so far operated on each of the groups primarily concerned. Farmers, he suggests, have benefited much less than might be supposed. This is partly because the stability engendered by the policy itself has led to an increase in productivity in agriculture, and so has lessened the demand for farm resources; and partly because the increased incomes that come from higher prices are either soon imputed to the factor land or slow down the secular process of outflow of labour from agriculture to industry. The policy which Professor Johnson himself favours to avoid the obvious waste and misallocation of resources current at present is to restrict the purpose of farm price support chiefly to the stabilisation of farm incomes in face of fluctuations in output caused by factors outside human control. Some additional support could be given in the event of a depression, but this is no substitute for more general monetary and fiscal policies in such a contingency. Finally, efforts should be made to overcome the frictions which, chiefly in the south, hamper the movement of labour away from agriculture, notwithstanding the appreciably larger earnings available in industry.]

LESTER (R. A.). Hiring Practices and Labor Competition. Princeton, N.J.: Industrial Relations Section, Princeton University, 1954. 9½″. Pp. 106. $2.50.

[This report is based on interviews conducted with the managements of a large number of manufacturing firms in Trenton, New Jersey. Information was sought on methods of labour recruitment and similar problems. The main conclusion which emerges is that the extent of labour mobility between firms is very limited. This is due chiefly to the various forms of premium attaching to seniority within a firm and the common practice of filling higher posts exclusively by promotion from within. The deliberate fostering by management of inter-firm immobility by such policies, as well as by anti-pirating agreements between firms, is, in the opinion of the author, actuated almost entirely by the desire to avoid the costs of labour turnover (wasted training, etc.), and apparently not at all by any desire to depress the general level of wage-rates through restriction of competition. The author regards these turnover costs as real costs. He argues that the immobility which results from them must be accepted as an inherent feature of the labour market, and also as an inherent limitation of the usefulness of public employment exchanges.]

MANHEIM (U. L.). The Florida Everglades. Their farming prospects. Miami, Florida: Bureau of Business and Economic Research, University of Miami, 1954. 11″. Pp. 60.

[A survey of the future possibilities with regard to total acreage under cultivation and use of land cultivated in the Central and South Florida Flood Control District.]

MARSHALL (M. V.). Automatic Merchandising. A study of the problems and limitations of vending. Boston, Mass.: Harvard Graduate School of Business Administration (London: Bailey Bros. & Swinfen), 1954. 8½″. Pp. v + 275. $3.50.

[The author traces the development from the original penny-in-the-slot machine to the very widespread use made of automatic selling in the United States at the present time. He describes the problems of location and servicing with which producers are faced, and he then goes on to analyse certain recent experiments in the mechanical sale of more expensive and less standardised commodities. The results of these experiments have not been very encouraging, and Professor Marshall's conclusion is that automatic selling is likely to remain confined to a relatively small range of low-priced convenience goods. The technical and other inherent difficulties of extending its use are strengthened by the small scale of most of the operators in the business, who have neither the means nor the interest for experimental development.]

MORGENSTERN (O.) (Ed.). Economic Activity Analysis. New York: John Wiley (London: Chapman & Hall), 1954. 9½″. Pp. 554. 54*s*.

[To be reviewed.]

PARNES (H. S.). Research on Labor Mobility. An appraisal of research findings in the United States. Social Science Research Council, Bulletin No. 65. New York: Social Science Research Council, 1954. 9″. Pp. v + 205. $1.75.

[To be reviewed.]

PHELPS (C. W.). Financing the Instalment Purchases of the American Family. The major function of the sales finance company. Studies in Consumer Credit, No. 3. Baltimore, Maryland: Commercial Credit Company, 1954. 9″. Pp. iii + 104.

[This is the third of a series of monographs on the business of sales finance companies, sponsored by the Commercial Credit Company. Its two predecessors were noted in the ECONOMIC JOURNAL of March 1953, p. 254, and June 1954, p. 438. In the present study Professor Phelps is concerned chiefly to describe the various facilities afforded by sales finance companies and their competitors for the purchase of automobiles and other durables (excluding houses). The author addresses himself largely to the intending consumer.]

PRIMM (J. N.). Economic Policy in the Development of a Western State, Missouri 1820–1860. Cambridge, Mass.: Harvard University Press (London: Geoffrey Cumberlege), 1954. 8½″. Pp. v + 174. 30*s*.

[The chief conclusion emerging from this admirably lucid and well-arranged short monograph is the rejection of the notion that the prevailing attitude in Missouri before the Civil War was hostile to state participation in economic activity as a matter of principle. The author reviews the activities of the state in the relief of distress, in the promotion of banking and internal improvements, and in other phases of economic activity, and shows that sectional conflicts were a more important obstacle to effective state action than any objections on grounds of principle. The policies actually adopted were in many cases the result of compromise between conflicting political and economic interests.]

Problems in Anti-Recession Policy. A Supplementary Paper of the Committee for Economic Development. New York: Committee for Economic Development, 1954. 11″. Pp. 161.

[This consists of a number of independent papers by economists and business-men on different aspects of the problem of income stabilisation. These papers were prepared as Research Memoranda for the use of the Research and Policy Committee of the Committee for Economic Development in connection with its study of stabilisation problems, which resulted in the publication of its recent statement entitled *Defense against Recession: Policy for Greater Economic Stability* (noted in the ECONOMIC JOURNAL of September 1954, p. 656.)]

ROBINSON (L. R.). Operating Results of Limited Price Variety Chains in 1953. Boston, Mass.: Harvard University Graduate School of Business Administration (London: Bailey Bros. & Swinfen), 1954. 11″. Pp. 33. 15*s*.

[This is the twenty-third annual report in its series. The value of sales of chain stores rose by 1·5% between 1952 and 1953—an increase about equal to that of total sales of non-durables, though substantially less than that of all retail sales. The rise in expenses was greater than the rise in sales, so that profits before tax fell by 1·8%. Profits after tax fell by 0·5%.]

ROETHLISBERGER (F. J.) AND OTHERS. Training for Human Relations. An interim report of a program for advanced training and research in human relations, 1951–1954. Boston, Mass.: Harvard Graduate School of Business Administration (London: Bailey Bros. & Swinfen), 1954. 8″. Pp. v + 198. $2.00.

[This describes an experiment carried out at the Harvard Business School over a period of three years in the advanced training in human relations of a small group of graduate students and others. The author discusses the methods of training adopted, their successes and failures and the implications for the study and teaching of human relations generally. One of the basic ideas underlying the work is summed up by Professor Roethlisberger as follows: "Instead of regarding skill [in human relations] as a technique to be learned, we have treated it as a way of learning; as a way one assimilates and orders experience and improves his relations to his surroundings" (p. 18). At first sight some may feel that to write a book about learning how to learn about human relations savours rather of academic introversion. But neither in style nor in content is the book redolent of the classroom, and much of what the author has to say will be of value to anyone interested in human relations in industry, and in particular to those concerned with the training of foremen and supervisors.]

SANDERSON (F. H.). Methods of Crop Forecasting. Harvard Economic Studies, Vol. XCIII. Cambridge, Mass: Harvard University Press (London: Geoffrey Cumberlege), 1954. 8½″. Pp. vii + 259. 40*s*.

[To be reviewed.]

THOMSON (J. C.). Balance and Flexibility in Fiscal and Monetary Policy. New York: Committee for Economic Development, 1954. 9″. Pp. 18.

[An exposition and defence of the type of fiscal and monetary policy recommended by the Committee for Economic Development in its recent publications. This policy involves full acceptance of budget deficits and surpluses as instruments of stabilisation policy, but prefers wherever possible the use of automatic stabilisers to that of discretionary changes in tax rates or government expenditure.]

TOSTLEBE (A. S.). The Growth of Physical Capital in Agriculture, 1870–1950. Studies in Capital Formation and Financing. National Bureau of Economic Research Occasional Paper 44. New York: National Bureau of Economic Research, 1954. 9″. Pp. 99. $1.25.

[To be reviewed.]

WALD (H. P.) and FROOMKIN (J. N.) (Eds.). Papers and Proceedings of the Conference on Agricultural Taxation and Economic Development, held under the auspices of the International Program in Taxation, Law School of Harvard University. Cambridge, Mass.: Law School, Harvard University, 1954. 10½″. Pp. iii + 439. $4.50.

[This contains papers by individual authors on problems of agricultural and other taxation in under-developed countries generally and in particular areas. Reports are also included prepared by working groups set up at the conference to consider the main issues on which research is needed in connection with different aspects of agricultural taxation.]

WRIGHT (D. MCCORD). A Key to Modern Economics. New York: The Macmillan Co., 1954. 8½″. Pp. vii + 520.

[To be reviewed.]

French

ANTOINE (J. C.). L'Échange et la Durée. Contribution à une théorie générale des taux d'intérêt. Paris: Armand Colin, 1953. 10″. Pp. 114. 400 frs.

[M. Antoine criticises current theories of the rate of interest for their static character and presents his own interpretation in terms of what he calls a theory of stocks and not one of flows. He concludes with a section on statistical applications. The first part of M. Antoine's study is devoted to an outline of basic concepts. He goes on to examine the nature of loans and the structure of interest rates.]

ANTOINE (J. C.). Introduction à l'Analyse Macro-Économique. Les origines. Paris: Presses Universitaires de France, 1953. 9″. Pp. 290. 1,000 frs.

[This is the first part of a study of the development of economic thought from the Mercantilists to modern macro-economic theory. This volume ends with an introduction to modern thought via the *General Theory*. It is an example of the avidity with which French economists are making up for the lost years by exhaustive reading of the literature of economics.]

GUGLIELMI (J-L.) and PERROT (M.). Salaires et Revendications Sociales en France 1944–1952. Paris: Armand Colin, 1953. 10″. Pp. 248.

[The authors examine, with the aid of an exhaustive study of the trade-union press between 1944 and 1952, the development of wage-claims in France during that period. They attempt to establish also a picture of the wages " philosophy " of the trade-union movement in France. There is an Appendix containing statistics of movements in wages and other relevant figures, and another in which are charted the activities and claims of the unions. MM. Guglielmi and Perrot draw attention to the importance in the post-war claims of the level of the real, rather than the money wage. This was reflected, in part, in a division of opinion among the labour federations at specific times on the proper policy to pursue: pressure for higher wages or agitation for stabilisation of the cost of living. The authors make great play of this development and of the importance of a " vital minimum " wage; what they say is of great interest. It bears the defect, however, of being clothed to a considerable extent in rather general, semi-philosophic phraseology.]

German

GOLLNICK (H.). Die Nachfrage nach Nahrungsmitteln und ihre Abhängigkeit von Preis- und Einkommensänderungen. Eine ökonometrische unterscuhung. Berlin: Paul Parey, 1954. 8″. Pp. 110. DM. 5.

[To be reviewed.]

HEINRICH (K.). Strukturwandlungen und Nachkriegsprobleme der Wirtschaft Spaniens. Kiel: Institut für Weltwirtschaft, 1954. 9″. Pp. 139. DM. 12.

[This is a statistical account of the lethargic progress, if not complete stagnation, of the Spanish economy from 1935 to 1952. Even though it did not suffer from the Second German War, the figures show rather clearly that not until 1951 did Spain regain the production levels it enjoyed before the Civil War.]

WEISE (H.). Das britische Einkommensteuerrecht in wirtschaftliche Sicht. Kiel: Institut für Weltwirtschaft, 1954. 9″. Pp. 194. DM. 16.

[Taxation is such an involved subject that, however tempting the thought, it is in practice rather difficult to learn from the experience of other countries. Succumbing to the temptation, Dr. H. Weise in the first part of this study attempts to provide German students with a thorough (and, on the whole, complimentary) account of the United Kingdom system of taxes, together with a discussion of some of the points raised before the Royal Commission on Taxation. The second part considers the economic effects of the various taxes; in particular, the effects on price formation, inflation and incentives. The treatment here is too brief to be altogether satisfactory.]

Swiss

BÖRLIN (M.). Die volkswirtschaftliche Problematik der Patentgesetzgebung, unter besonderer Berücksichtigung der schweizerischen Verhältnisse. S. Gallen: Polygraphischer, 1954. 8½″. Pp. vii + 236. Fr. 15.50.

[This is a discussion of the relative economic advantages of various types of patent laws, particularly in their bearing on the development of monopolistic situations.]

SCHAUMANN (K.). Die schweizerischen Finanzforderungen im gebundenen Zahlungsverkehr mit dem Ausland. Mitteilungen aus dem Handelswissenschaftlichen Seminar der Universität Zurich. Zurich: Schulthess, 1954. 9″. Pp. v + 185. Fr. 14.50.

[Ever since Switzerland was spared the Thirty Years War its growth as a centre of confidence in a world of trouble has proceeded almost without interruption; and so has its growth as a centre of

international finance. The present study is concerned primarily with the last twenty-five years, and gives an account of the effects on Swiss finance of the international credit crisis of 1931, the subsequent exchange agreements and the difficulties of the war and post-war periods. It is a remarkably fascinating story in which "hot money" and "free" exchange rates play their well-known parts. The emphasis throughout is on the delicate measures that Switzerland has had to take in order to ensure its own economic stability without at the same time losing the advantages derived from being a world financial centre.]

Dutch

GORIS (H.). Price-Determining Factors in American Tobacco Markets. Contributions to Economic Analysis, V. Amsterdam: North-Holland Publishing Company, 1954. 8½". Pp. 109. 20*s*.

[To be reviewed.]

GOUBITZ (E.). To and Fro. Human Relations in American Industry seen through Dutch Eyes. The Hague: Contactgroep Opvoering Productiviteit, 1954. 10". Pp. 70. f. 1.75.

[This is the record of a trip to America undertaken by a Dutch consultant in personnel management. The first and third sections of the report consist of a general comparison of problems of industry and labour in Holland and the United States. The author's freshness of approach lends interest to these sections, although the conclusions are mostly fairly familiar. The second section contains a very useful survey of the chief lines of research that have been and are being undertaken in the United States on problems of human relations in industry.]

KOYCK (L. M.). Distributed Lags and Investment Analysis. Contributions to Economic Analysis, IV. Amsterdam: North-Holland Publishing Company, 1954. 8½". Pp. 111. 20*s*.

[To be reviewed.]

TINBERGEN (J.). Centralization and Decentralization in Economic Policy. Contributions to Economic Analysis, VI. Amsterdam: North-Holland Publishing Company, 1954. 8½". Pp. 80. 13*s*.

[To be reviewed.]

Danish

JENSEN (A.). A Distribution Model Applicable to Economics. Copenhagen: Munksgaard, 1954. 10". Pp. 99.

[This mathematical monograph shows how many common statistical distributions can be developed from the operation through time of a Markoff process or a Markoff chain. In the second half of the work the formal application of the theory to certain economic models is sketched. Dr. Jensen's object is to develop a tool of analysis which can be used to deal with economic problems possessing an important stochastic element. Four main classes of problems are considered: propagation problems, market equilibrium, the theory of risk and traffic programming. The monograph will be a valuable source of ideas and techniques to the mathematical economist anxious to pay adequate attention to the non-deterministic character of the real world.]

Italian

VITO (F.). L'Economia a Servizio dell'Uomo. I nuovi orientamenti della politica economica e sociale. 4th edition. Milan: Società Editrice Vita e Pensiero, 1954. 8". Pp. 399. Lire 900.

[In this fourth edition of his work, Professor Vito has added a substantial new section dealing with the special problems of social and economic policy in Italy. Among the issues here discussed are the problem of employment, emigration, the economic activities of the state and agrarian reform.]

VITO (F.). Le Fluttuazioni Cicliche. 5th revised edition. Milan: Società Editrice Vita e Pensiero, 1954. 8". Pp. 257. Lire 650.

[The fifth edition of this work has been revised to take account of recent publications bearing on the central thesis put forward in its original version as well as in other writings by Professor Vito. This thesis is that the slump comes about because investment in the boom is financed by forced saving and that the ploughing back of undistributed profits is the main form which this process takes at the present time. The author argues that recent evidence of the importance of internal sources of finance for investment calls for a reappraisal of traditional policies of credit control.]

Finnish

AF HEURLIN (L. O.). The Economic Theory of Agricultural Production. Helsinki: Academia Scientiarum Fennica, 1954. 9½". Pp. 130.

[To be reviewed.]

Indonesian

BANK INDONESIA. Report for the year 1953–1954. Djakarta: Bank Indonesia, 1954. 11". Pp. 190.

[Almost the whole of this document is devoted to a survey of economic developments in Indonesia in the course of the year. Foreign-exchange reserves continued to fall, but the excess of imports over exports was less than in the previous year, and it is suggested that the development of export and import-substitute industries and encouragement of foreign investment may, if combined with prudent fiscal policy and close control over imports, enable the country's external balance of payments to be established on a more satisfactory footing in the not too distant future.]

Official

BRITISH

MINISTRY OF FOOD. Domestic Food Consumption and Expenditure, 1952. Annual Report of the National Food Survey Committee. London: H.M. Stationery Office, 1954. 9½". Pp. 102. 4*s*.

[The National Food Survey for 1952 was the first one to cover all the months of the year and so to make possible study of seasonal movements. Detailed discussion of seasonal movements is one of the features of this year's issue of the report. Among other new material included is an analysis of the relation between the number of children in the family and expenditure on all food and on individual items of food. An interesting finding here is that the addition of children to a family leads to a very much smaller proportional increase in the consumption of protective foods than in the consumption of carbohydrates.]

AMERICAN

COMMISSION ON FOREIGN ECONOMIC POLICY. Report to the President and the Congress, January 1954. Washington, D.C.: U.S. Government Printing Office, 1954. 9". Pp. 94. 35 c.

COMMISSION ON FOREIGN ECONOMIC POLICY. Minority Report, January 1954. Washington, D.C.: U.S. Government Printing Office, 1954. 9". Pp. 94. 15 c.

Staff Papers presented to the Commission on Foreign Economic Policy, February 1954. Washington, D.C.: U.S. Government Printing Office, 1954. 9". Pp. 531. $1.75.

[The two reports represent the majority and minority reports of the Randall Commission, on the basis of which President Eisenhower has recently recommended to Congress the extension of the Trade Agreements Act. The Staff Papers form an exceedingly valuable study of the post-war dollar problem, of the extent of United States foreign aid and foreign investment, of the special problems of agriculture and of the instability of raw material prices, of United States dependence on imported materials, and of the history and economic effects of United States tariffs. There are in addition valuable discussions of the problems of United States adjustment to increased imports and of currency convertibility and the adequacy of foreign monetary reserves.]

AUSTRALIAN

BUREAU OF AGRICULTURAL ECONOMICS. Australian Clothing Consumption Survey. General Report. Canberra: Bureau of Agricultural Economics, 1954. 10". Pp. 82.

[From May 1950 to February 1951 information on ownership and acquisition of clothing in Australia was collected from a sample of 6,000 people. This is believed to be the most comprehensive survey of clothing habits yet undertaken for any country. Particulars are given of the number and type of garments, and their weight and wool content, owned and acquired by men, women, boys and girls in each of the States in the year studied. Analysis is also given of the effect on clothing habits of domicile, marital status, number of dependants, age, occupation and income.]

INTERNATIONAL

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT. Ninth Annual Report, 1953–1954. Washington, D.C.: International Bank for Reconstruction and Development, 1954. 11". Pp. 71.

[The total amount of loans made by the Bank in the year 1953–54 was $324 million, the highest reached so far. Transport and electric-power facilities each absorbed about a third of this amount. The first chapter of the report describes the procedure adopted by the Bank in the preparation and execution of projects which it supports.]

INTERNATIONAL LABOUR OFFICE. Vocational Guidance in France. Geneva: International Labour Office, 1954. 9¼". Pp. 134. 6*s*.

[The first part of this report contains an account of the organisation of the services providing vocational guidance in France, and the second deals with the methods of guidance adopted. Most of the work done has so far been in the guidance of juveniles, the guidance service to adults having been confined chiefly to the disabled. The scope of the service has expanded considerably since the end of the war, and finance is the chief limitation on further growth at the present time.]

INTERNATIONAL MONETARY FUND. Annual Report 1954. Washington, D.C.: International Monetary Fund, 1954. 9". Pp. ix + 200.

[This year's report contains a long survey of developments in the international balance of payments in 1952, 1953 and the first quarter of 1954. This is preceded by an introductory chapter in which the authors welcome recent movements towards fuller currency convertibility and discuss the conditions for further progress along the same lines.]

INTERNATIONAL TIN STUDY GROUP. 1954 Statistical Year Book. The Hague: International Tin Study Group, 1954. 11". Pp. 260. 55*s*.

[This is the third biennial issue of this useful year book: in the intervening years the Study Group publishes a Statistical Supplement (1955 issue included in the price). Section I gives a summary of the International Tin Agreement, and Section II reviews production, consumption, etc., during the last two years. Section III summarises government regulations, and the detail is not of much interest to the economist, but Section IV on the tinplate and canning trades may cause him to open his eyes unless he happens already to be well informed on these subjects. Then comes the core of the book in Sections V–XI, which review by continents the production and trade in tin, tin metal, tinplate, etc., in almost every country of the world, except the U.S.S.R. though some notes are given in an appendix. Section XII contains tables of the prices of tin and tin manufactures. A Year Book should be essentially a reference book, and if few economists, and not many business-men, will be interested in the tin statistics of the Azores or the West Indies, or even of some more important countries, such a compilation is well worth the labour and cost involved, and on the really important producing and consuming countries the compilation is as valuable as it is well done.]

ORGANISATION FOR EUROPEAN ECONOMIC CO-OPERATION. Statistics of National Product and Expenditure, 1938, 1947 to 1952. Paris: O.E.E.C., 1954. 11". Pp. 310. 10*s*.

[This volume, for which we have to thank Dr. Milton Gilbert and the staff of the National Accounts Division of O.E.E.C., under the direction of Dr. G. Stuvel, presents the statistics of the national product and expenditure of all the O.E.E.C. Member Countries, the United States and Canada "on as comparable a basis as has been found feasible," and it gives in addition corresponding estimates for the O.E.E.C. Countries combined. It makes the difficult tasks of international comparison very substantially less than they have been in the past.]

UNITED NATIONS. Economic Survey of Latin America, 1953. Prepared by the Secretariat of the Economic Commission for Latin America. New York: United Nations Department of Economic Affairs, 1954. 11". Pp. 246. 17*s*. 6*d*.

[The year 1953 saw a continuation of the decline in the pace of industrialisation and growth of output in Latin America that was apparent in some degree in 1952. According to the statistics prepared by the Economic Commission for Latin America, output per worker declined slightly in 1953, and there was a sharp reduction in both public and private investment, though not in consumption. These contractionary tendencies were largely the result of deflationary policies pursued by governments in order to correct the balance of payments difficulties that had arisen in preceding years as a consequence of rapid growth in income combined with a high marginal propensity to import. In contrast to industry, production in Latin American agriculture increased during the year substantially—in Argentina spectacularly. This was largely due to climatic factors, but it reflected also the greater attention given recently to agriculture by the governments of several states. The report contains a wealth of interesting and well-arranged information on these and other trends during the year, both in Latin America as a whole and in individual countries.]

UNITED NATIONS. Yearbook of International Trade Statistics 1953. New York: United Nations Department of Economic Affairs, 1954. 11". Pp. 481. $4.50.

[The 1953 edition of this invaluable Yearbook follows in the main the same pattern as earlier issues. The world and regional indices of the quantum of trade showed a handsome increase; world export trade (excluding the iron curtain countries) rose from 134% of the 1948 base to 143%. The analysis for so many countries according to the United Nations Standard International Trade Classification has been an heroic achievement. One remains puzzled as to why the analysis on a world basis is not extended to give us indices of the world volume of exports in a few broad categories, distinguishing, for example, manufactures, materials and foodstuffs. Some knowledge of the trends in these categories is almost a necessity.]

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